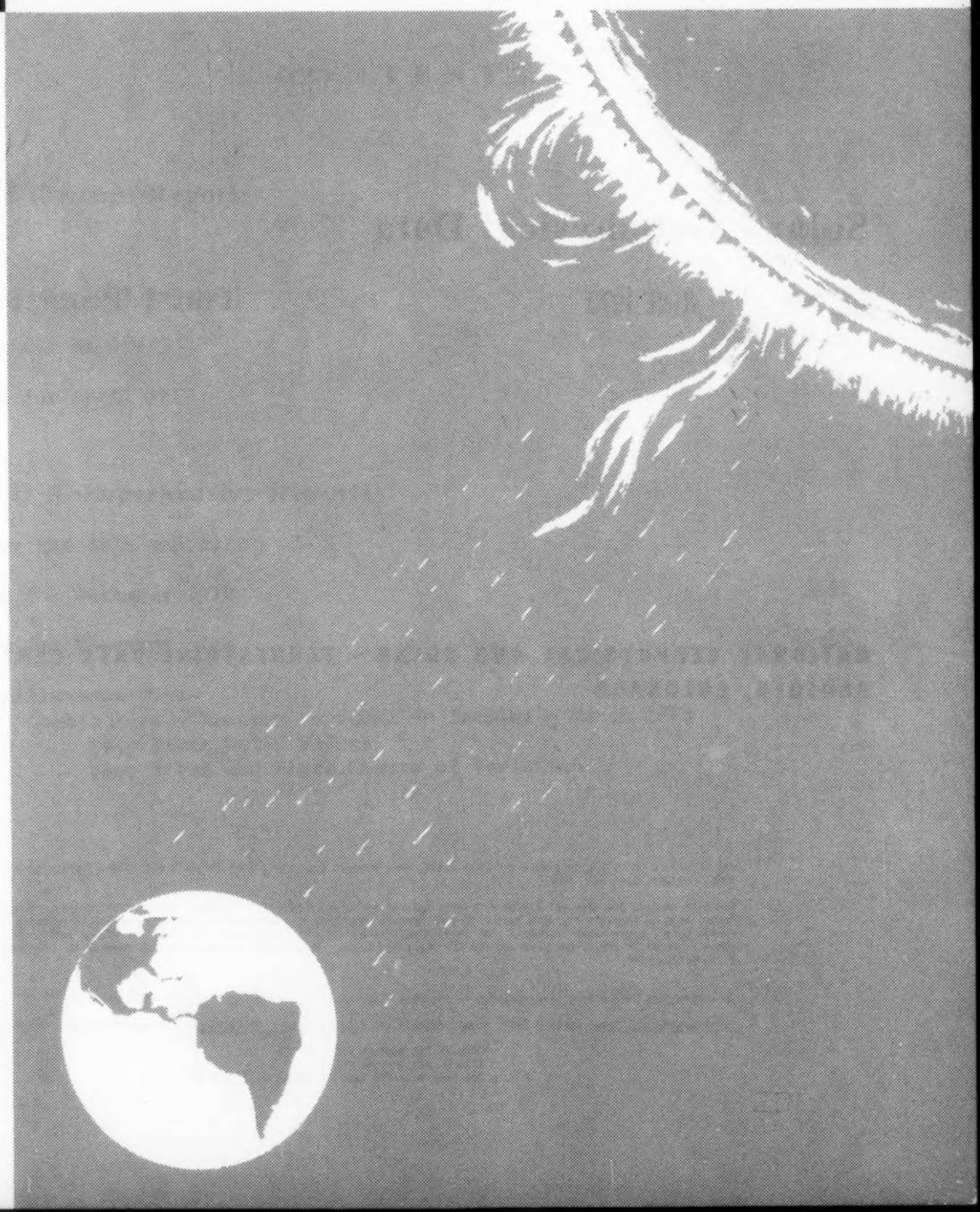
A UNITED STATES DEPARTMENT OF COMMERCE PUBLICATION

SOLAR-GEOPHYSICAL DATA
(prompt reports)

U. S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
Environmental Data Service

JUNE 1973



NUMBER 346-PART I
DATA FOR
MAY 1973
APRIL 1973

U.S. DEPARTMENT OF COMMERCE
Frederick B. Dent, Secretary
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
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ENVIRONMENTAL DATA SERVICE
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Solar - Geophysical Data

NO. 346 JUNE 1973

Part I (Prompt Reports)

DATA FOR
MAY 1973
APRIL 1973

NATIONAL GEOPHYSICAL AND SOLAR - TERRESTRIAL DATA CENTER
BOULDER, COLORADO

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To standardize referencing these reports in the open literature, the following format is recommended:

Solar-Geophysical Data, CRPL-FB 135*, pages, issue date, U.S. Department of Commerce, (Boulder, Colorado, U.S.A. 80302).

*CRPL-FB 135 through 269
IER-FB 270 through 298
299 Part I or 299 Part II to number of current issue.

SOLAR - GEOPHYSICAL DATA

No. 346

Issued in two parts

Hope I. Leighton, Editor

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For explanations of the data contained herein see "Descriptive Text" published as supplement to February 1973 "Solar-Geophysical Data" (Number 342).

ALERT PERIODS

INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

MAY 1973

MAY 1973	TIME OF ISSUE UT	ADVANCE GEOPHYSICAL ALERT	WORLDWIDE GEOPHYSICAL ALERT	
			NO	TYPE INCLUDING FLARE ACTIVITY EXPECTED
01	0316	TOYOKAWA TENFLARE 2200 UNITS 01/0240Z IN PROGRESS WEST LIMB		
	0321	CARNARVON TENFLARE 3914 FU 01/0229Z MAXIMUM AT 01/0308Z IN PROGRESS 01/0322Z		
	0400		01528	MAGSTORM EXISTS MINOR
			01529	MAGALERT 02/XX
			01530	SOLALERT; N10W90 ACTIVE; S12E90 ERUPTIVE; THREE QUIET
02	0400		02531	MAGSTORM ENDS
			02532	MAGALERT 01/02; S13E71 ACTIVE; ONE QUIET
	0853	CANARY ISLAND SOFLARE 2B S12E54 IN PROGRESS. TENFLARE 1,168 UNITS 03/0831Z IN PROGRESS		
03	0400		03533	MAGALERT 03/04
			03534	SOLALERT; S13E58 ACTIVE; TWO QUIET
04	0400		04535	SOLALERT; S11E46 ACTIVE; S09E63, S14E80 ERUPTIVE; THREE QUIET
05	0400			S14E28 ERUPTIVE; FOUR QUIET; SOLNIL
06	0400		06536	SOLALERT; S13E14 ACTIVE; FOUR QUIET
07	0400		07537	SOLALERT; S13E07 ACTIVE; TWO QUIET
08	0400		08538	SOLALERT; S15W10 ACTIVE; TWO QUIET
09	0400		09539	SOLALERT; S16W26 ERUPTIVE; ONE QUIET
10	0400			S15W38 ERUPTIVE; SOLNIL
11	0400			S17W60, S14W49 ERUPTIVE; ONE QUIET; SOLNIL
12	0400			TWO QUIET; SOLNIL
13	0400			THREE QUIET; SOLNIL
14	0145	BOULDER MAGSTORM BEGINS 14/0054Z SUDDEN COMMENCEMENT		
	0400		14540	MAGSTORM BEGINS 14/0054Z WITH VERY SUDDEN COMMENCEMENT; NO REGIONS ON VISIBLE DISK; SOLNIL
15	0400		15541	MAGSTORM EXISTS MINOR; N13E80 ERUPTIVE; ONE QUIET
16	0400		16542	MAGSTORM EXISTS MINOR; S09E21 ERUPTIVE; ONE QUIET
17	0400		17543	MAGSTORM EXISTS MINOR; N08E59 ERUPTIVE; TWO QUIET
18	0400		18544	MAGSTORM EXISTS MINOR
			18545	SOLALERT; N09E46 ACTIVE; THREE QUIET
	2340	TOYOKAWA TENFLARE 100 UNITS 18/2154Z		
19	0400		19546	MAGSTORM EXISTS MINOR
			19547	SOLALERT; N10E32 ERUPTIVE; THREE QUIET
	2258	BOULDER TENFLARE 1860 UNITS 19/2242Z MAXIMUM 19/2244Z IN PROGRESS		
20	0005	TOYOKAWA TENFLARE 550 UNITS 19/2238Z 15 MINUTES		
	0400		20548	MAGSTORM EXISTS MINOR
			20549	SOLALERT; N10E18 ERUPTIVE; ONE QUIET
	0510	TOYOKAWA TENFLARE 110 UNITS 20/0448Z 6 MINUTES		
	0615	TOYOKAWA TENFLARE 180 UNITS 20/0540Z 30 MINUTES		
	2345	TOYOKAWA TENFLARE 170 UNITS 20/2147Z 3 MINUTES		
21	0400		21550	MAGSTORM EXISTS MINOR
			21551	SOLALERT; N09E07 ERUPTIVE; ONE QUIET
22	0400		22552	MAGSTORM EXISTS MINOR
			22553	SOLALERT; N10W09 ERUPTIVE; FOUR QUIET
23	0400		23554	MAGSTORM ENDS 22/0900Z
			23555	SOLALERT; N10W20 ERUPTIVE; THREE QUIET
24	0400		24556	SOLALERT PIANO; N11W35 ERUPTIVE; FIVE QUIET
25	0400			N11W49, S03E00 ERUPTIVE; THREE QUIET; SOLNIL
26	0400			N11W60, S02W09 ERUPTIVE; THREE QUIET; SOLNIL
27	0400			S02W23 ERUPTIVE; THREE QUIET; SOLNIL
28	0400			S03W38 ERUPTIVE; FIVE QUIET; SOLNIL
29	0400			S03W51 ERUPTIVE; TWO QUIET; SOLNIL
30	0400			S01W69 ERUPTIVE; ONE QUIET; SOLNIL
31	0400			N15W44 ERUPTIVE; TWO QUIET; SOLNIL

RELATIVE SUNSPOT NUMBERS

ZURICH, R_Z

	1972 FINAL							1973 PROVISIONAL				
DAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY
1	85	68	103	127	78	75	48	45	7	48	65	24
2	96	74	93	99	65	67	31	53	17	38	79	46
3	105	82	89	79	73	49	28	55	22	35	93	64
4	121	91	85	78	73	38	24	68	21	32	93	77
5	139	104	93	80	67	23	21	72	41	22	75	92
6	115	95	85	81	57	19	18	83	32	32	75	68
7	99	91	65	73	54	8	24	66	34	38	76	82
8	90	82	60	71	52	7	29	60	53	50	71	52
9	79	75	59	59	34	14	42	70	60	53	68	30
10	68	64	47	46	30	12	53	55	61	67	65	25
11	63	62	31	43	34	30	61	52	59	69	62	26
12	92	74	53	36	23	33	64	32	80	92	46	18
13	48	84	55	32	15	38	67	35	83	79	41	7
14	62	80	43	37	8	27	69	15	85	78	37	7
15	88	61	42	45	14	21	71	10	74	73	35	25
16	98	53	57	53	34	25	66	11	54	64	29	33
17	105	59	59	44	30	32	71	27	36	52	16	34
18	95	55	57	38	28	28	58	42	28	44	15	41
19	88	66	57	33	44	42	49	47	18	34	32	42
20	92	56	60	47	60	58	54	60	30	23	42	32
21	100	66	62	60	69	65	67	62	31	20	45	52
22	97	69	85	69	78	69	59	62	25	30	67	53
23	92	65	79	65	85	79	57	60	33	37	72	47
24	88	62	82	77	94	77	48	59	38	29	73	57
25	83	62	71	82	105	65	43	39	48	27	67	64
26	77	77	79	78	111	57	39	27	37	23	67	46
27	79	82	93	77	110	55	34	8	38	32	67	51
28	81	86	118	67	104	61	26	14	36	43	60	32
29	78	102	147	78	89	47	25	7		46	54	23
30	76	108	141	75	98	43	29	16		50	42	21
31		115	137		93		37	13		56		17
MEAN	88.0	76.5	76.8	64.0	61.3	41.6	45.3	42.2	42.1	45.4	57.6	41.5

1972 yearly mean = 68.9

DAILY SOLAR FLUX AT 2800 MHz
OTTAWA ARO

FLUX ADJUSTED TO 1 A.U., S_a

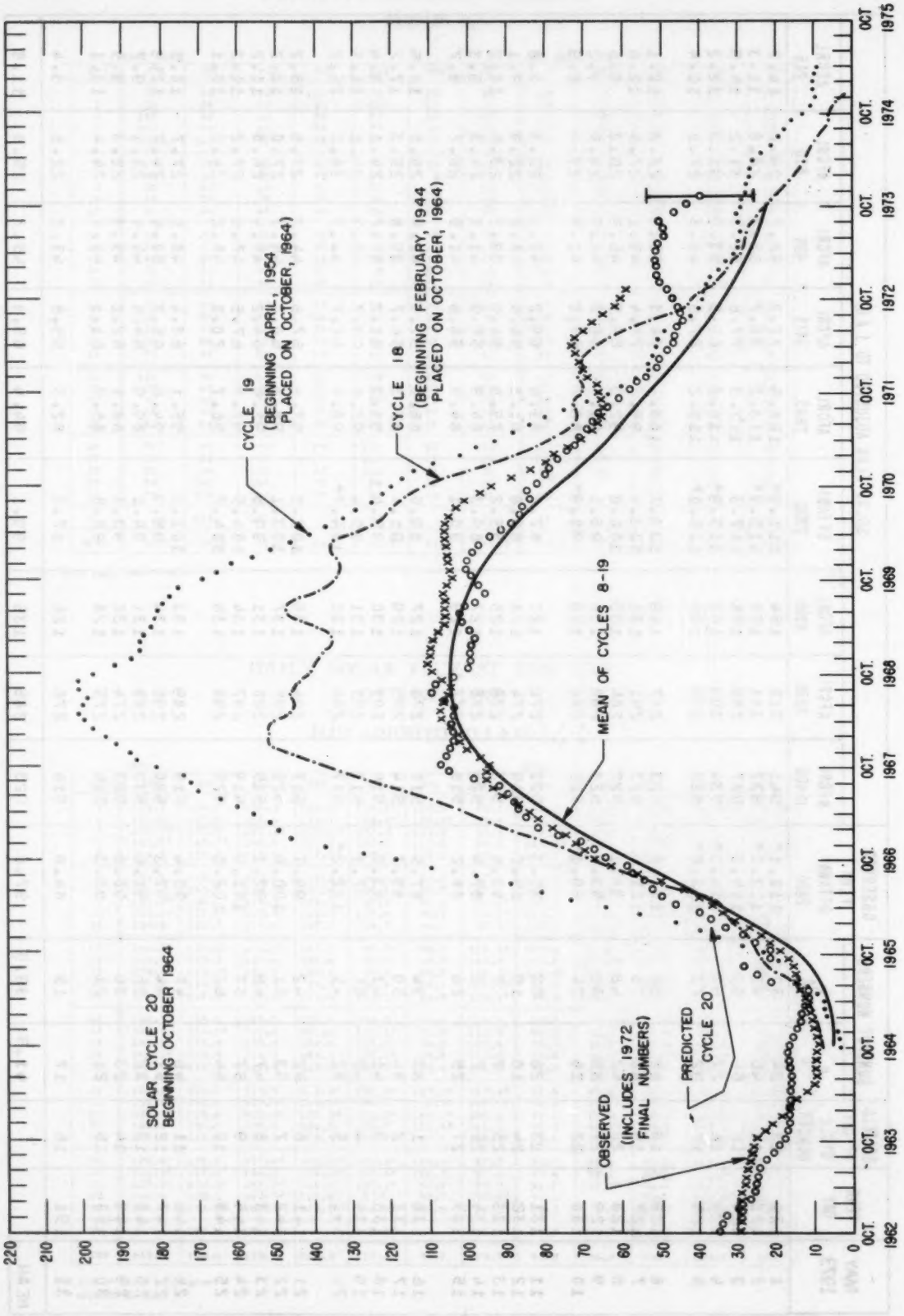
	1972							1973				
DAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY
1	128.2	133.0	156.3	144.3	114.7*	129.9	91.1	93.9	88.6	99.5	115.0	111.9*
2	130.0	137.0	150.4	139.7*	108.4*	121.8*	89.4	98.2	88.6	101.6*	118.1*	115.8*
3	137.5*	139.9	147.1*	129.4*	107.3	113.9	85.2	105.1*	93.1	97.8*	129.4	117.3
4	149.5*	146.7*	146.0	122.0	103.3	115.8	82.3	109.3*	94.1*	96.6	122.3	115.9*
5	164.8	150.2	146.5	117.0*	100.6	102.6	80.4	113.3	94.3	94.8	117.7	115.0*
6	159.1	146.1	143.4	119.2	98.4	93.2	77.8	115.8	95.3*	98.9	112.7*	109.7
7	152.7	143.2	139.0*	118.4	96.1	85.7	87.1	112.3	98.5	92.2	110.3	103.4
8	153.2*	136.7	125.3	115.9	97.2	82.5	91.6*	103.2	100.5	98.9*	121.0	100.0
9	149.1*	127.1	123.8	112.9	100.5	82.3	94.7*	103.7	100.9	104.7*	120.5	95.1
10	139.5	121.7	118.6	107.2	94.7	84.7	97.2*	103.8	102.1*	105.6*	115.5	90.9*
11	143.2*	123.6*	113.3*	102.7	93.5*	88.3	105.1*	102.8	101.2	113.4	110.3*	87.0
12	149.7	119.3	107.6	100.6	94.7	88.7	108.9	103.5	104.6*	114.5	108.4*	86.8
13	138.9*	119.9*	101.7	94.6	94.5	86.7	111.2*	100.9*	104.7*	118.9	99.4*	85.2
14	136.5	119.5	97.9	99.5	97.8	85.1	114.8*	96.2	105.6	114.0*	92.7*	89.3
15	139.5*	117.6	97.6	103.4	102.1*	86.5	116.1*	94.6	104.7	107.1*	89.5	90.1
16	142.7*	115.1	100.6	103.1	106.2	89.6	110.2	93.8	98.7	106.9	85.0	89.5
17	149.6	114.6*	106.4	100.3	112.1*	91.5	111.9	94.2	94.2	101.5	82.1	91.4
18	149.0*	108.9	109.6	102.6	111.0	94.6	112.4	95.3	90.7	94.9	80.9	95.4
19	143.2*	108.9	116.2	106.2	117.1*	99.7	113.2	94.8	88.9	96.7*	82.8	99.4
20	142.5	110.9	117.9	113.2	122.2	109.4	111.4	98.3	89.4	91.0	86.4	104.7*
21	139.0*	111.7	119.5	113.4*	132.8*	109.3*	113.4*	97.9	89.9	87.4	95.2	102.2
22	135.1	111.6	127.3*	119.4*	141.7	110.9*	107.9*	98.5	89.7	90.3	105.0	103.1
23	130.7	109.6	122.9*	129.2*	151.2*	115.3*	106.2	97.2	91.4	87.1	109.2	99.6
24	128.5	109.5	122.6	126.8	156.5	115.4*	101.1	96.9	93.6*	89.4	109.8*	104.5
25	125.5	112.4	127.8	126.3*	171.8	112.7	103.3*	95.6	97.2	90.0	109.2*	104.7
26	120.8	120.6	137.4*	122.5*	170.0*	108.6	97.7	95.3	95.6	88.6	110.8*	101.1
27	121.9*	127.2	144.1	118.3*	167.6*	102.3	97.6	93.4	98.2	92.0	111.6*	99.9
28	127.3	133.3*	147.2*	116.4	159.1*	97.5	91.9	91.7	100.9*	94.2	112.6	94.1
29	132.4	139.1	163.3*	115.2	B.I.P.	92.7	92.8*	91.4		99.0	109.5*	93.3
30	134.5	141.2*	163.3	116.5	144.6*	95.1	92.0*	89.7		102.7	106.2*	90.8
31		150.2	154.2*		148.1*		94.3	87.7		110.3		87.2
MEAN	139.7	126.0	128.9	114.9	120.2	99.7	99.7	99.0	96.3	99.4	105.8	98.1

B.I.P. = burst in progress
* adjusted for burst

DAILY SOLAR INDICES

MAY 1973

MAY 1973	YEAR DAY	BARTELS 27-DAY CYCLE NUMBER	SUNSPOT NUMBERS		OBSERVED FLUX	SOLAR FLUX ADJUSTED TO 1 A.U.								
			R_Z	R_A'	OTTAWA 2800	AFCRL 15400	AFCRL 8800	AFCRL 4995	OTTAWA 2800	AFCRL 2695	AFCRL 1415	AFCRL 606	AFCRL 410	AFCRL 245
1	121	13	24	30	110.1*	541	310	154	111.9*	108.9	77.2	52.2	29.7	14.2
2	122	14	46	43	113.2*	537	311	156	115.0*	113.2	76.7	52.2	28.8	11.3
3	123	15	64	53	115.3	537	305	156	117.3	112.3	77.6	52.3	31.2	15.5
4	124	16	77	63	114.0*	534	309	162	115.9*	116.8	80.5	53.2	31.3	12.2
5	125	17	92	73	113.0*	532	299	156	115.0*	110.2	77.6	49.3	27.5	10.4
6	126	18	68	66	107.8	523	287	149	109.7	105.4	74.1	50.3	27.8	12.1
7	127	19	82	75	101.5	523	291	138	103.4	99.2	70.4	49.1	27.5	10.6
8	128	20	52	48	98.1	522	284	133	100.0	92.9	69.5	46.9	26.3	9.6
9	129	21	30	30	93.3	523	280	130	95.1	91.1	66.2	44.9	24.5	9.2
10	130	22	25	24	89.1*	520	280	129	90.9*	88.7	63.0	41.8	23.4	8.9
11	131	23	26	22	85.3	520	276	122	87.0	81.6	59.2	40.0	22.3	8.8
12	132	24	18	19	85.0	519	274	128	86.8	81.8	56.5	40.0	22.9	9.1
13	133	25	7	7	83.4	523	276	125	85.2	79.5	54.8	39.2	23.6	10.2
14	134	26	7	2	87.4	525	278	127	89.3	84.9	55.9	41.3	24.3	9.3
15	135	27	25	26	88.2	518	277	129	90.1	84.0	56.6	41.9	25.7	9.7
16	136	1	33	34	87.5	518	276	127	89.5	86.0	57.3	40.4	25.5	10.5
17	137	2	34	39	89.3	514	275	129	91.4	87.3	56.7	39.8	25.3	17.2
18	138	3	41	41	93.2	516	281	130	95.4	91.0	61.2	41.7	24.1	9.4
19	139	4	42	36	97.1	517	291	131	99.4	95.5	63.7	42.3	24.1	11.3
20	140	5	32	45	102.2*	517	286	135	104.7*	98.6	66.7	44.2	28.2	26.2
21	141	6	52	42	99.7	517	284	135	102.2	97.4	67.6	44.3	27.6	25.2
22	142	7	53	51	100.6	520	285	137	103.1	98.6	68.0	46.3	27.0	12.2
23	143	8	47	46	97.1	515	280	131	99.6	91.6	64.2	45.9	26.0	11.2
24	144	9	57	57	101.9	519	287	134	104.5	97.7	67.5	47.6	27.2	11.2
25	145	10	64	62	102.0	525	290	136	104.7	96.7	70.0	48.2	24.2	10.1
26	146	11	46	47	98.4	519	289	133	101.1	95.1	68.4	48.8	27.7	10.3
27	147	12	51	44	97.3	520	290	134	99.9	94.6	65.7	50.4	24.7	12.8
28	148	13	32	26	91.6	530	285	131	94.1	89.9	64.4	46.4	23.1	9.7
29	149	14	23	36	90.8	523	274	130	93.3	88.1	62.2	45.9	22.3	9.5
30	150	15	21	21	88.3	516	275	128	90.8	85.2	61.1	46.0	24.4	10.1
31	151	16	17	15	84.8	516	276	126	87.2	82.3	59.6	45.0	22.6	9.4
MEAN			41.5	39.5	97.0	523	286	136	99.1	94.4	65.8	45.7	25.8	11.9



PREDICTED AND OBSERVED SUNSPOT NUMBERS

SMOOTHED OBSERVED AND PREDICTED SUNSPOT NUMBERS

CYCLE 20

MONTH	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.
1964										9.6	10.2	11.0
1965	11.7	12.0	12.5	13.6	14.6	15.0	15.5	16.4	17.4	19.7	22.3	24.5
1966	27.7	31.3	34.5	37.4	40.7	44.6	50.3	56.6	63.1	67.6	70.2	72.7
1967	75.0	78.8	82.2	84.6	87.4	91.3	94.1	95.3	95.3	95.0	97.1	100.6
1968	102.6	102.9	104.7	107.2	107.6	106.6	105.2	104.8	107.0	109.9	110.6	110.1
1969	110.0	109.6	108.0	106.4	106.2	106.1	105.8	106.4	105.4	104.1	104.6	104.9
1970	105.6	106.0	106.2	106.1	105.8	105.3	103.8	101.0	97.2	93.9	89.4	84.1
1971	80.4	77.8	74.4	70.9	68.1	66.7	65.4	64.6	65.8	66.2	66.8	69.4
1972	70.8	71.2	72.4	73.4	72.9	70.5	68.1	65.4	62.0	60.3	58.5	57.8 (5)
1973	56.6 (5)	54.9 (5)	53.0 (6)	50.9 (8)	49.3 (9)	47.5 (10)	45.9 (10)	45.1 (12)	43.6 (13)	41.4 (14)	39.2 (14)	37.2 (13)
1974	35.8 (13)	34.7 (13)	33.8 (14)	33.0 (14)	32.2 (15)	31.0 (15)	29.5 (15)	27.8 (14)	25.7 (14)	23.8 (14)	21.9 (15)	20.4 (15)
1975	19.3 (14)	17.9 (14)										

For each month, the upper figure is the observed or predicted Zürich smoothed sunspot number. The lower figure in parenthesis is the corresponding absolute value of the 90% prediction interval, an indication of the uncertainty above and below the predicted number. Observed numbers are those with no prediction intervals. The observed smoothed sunspot numbers are based on final Zürich numbers through 1972.

The predicted sunspot numbers are derived from a regression analysis based on cycles 8 through 19. Tests indicate that earlier cycles are from a different statistical population. From July 1968 - February 1970 a regression analysis based on cycles 1 through 19 was used because it had not then been proven that two populations exist.

SOLAR FLARES

PARTIAL LISTING

Solar Flares for which at least one observatory has assigned a numerical importance of "1" or greater.

MAY 1973

OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS					REMARKS
	DATE MAY	START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY	MIN.		COND.	TYPE	TIME — UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH HB	MAX. INT. %	
PALE	01	0051	0114	0102	S14	E89	.999		7.7	23	SN	3	C						F
MANI	01	0053E	0130D	0104	S14	E84	.993	12336	7.3	37D	1N	2		0104	1.24	3.46			F
MANI	01	0140	0209	0149	S17	E45	.718	12332	4.4	29	1N	2		0149	2.06	3.04			F
PALE	01	0141	0203	0148	S18	E45	.721		4.4	22	SN	3	C		1.08				DE
MITK	01	0305E	0358	0323	N13	W90	1.000	12322	24.4	45D	1B		C	0323	1.13				E
TEHR	01	0911	0952	0915	S16	E79	.979		7.3	41	SN	2	C		.55				DE
CATA	01	0925	0955	0935	S16	E77	.972		7.2	30	SN		C	0935	.29			(174)	
UPIC	01	0934E	1016	0939	S16	E77	.972	12336	7.2	42D	1N		P	0939	1.05				
UPIC	01	1115	1131	1122	N15	W90	1.000	12322	24.7	16	1N		P	1122	.42				
CATA	01	1150	1210	1150	N14	W90	1.000	12322	24.7	20	1N		C	1150	.58			(182)	
UPIC	01	1153	1235		N15	W90	1.000	12322	24.7	42	1B		P	1155	.63				
UPIC	01	1351	1544		S14	E75	.963	12336	7.2	113	1N		P	1433	1.47				KF
RAMY	01	1407E	1441	1410U	S13	E72	.949		7.0	34D	SF	2	C		.74				DE
RAMY	01			1418U							SN				.84				
TEHR	01	1420	1455D	1424	S13	E78	.976		7.4	35D	SB	2	C		.73				F Z
ISTA	02	0925	0955		S13	E70	.937		7.6	30	SN								E
TEHR	02	0928	1006	0936	S13	E71	.943		7.7	38	SN	2	C		.55				F
CATA	02	0930	1000D	0935	S14	E67	.919		7.4	30D	SB		P	0935	.58			(214)	
ATHN	02	0937E	1007	0937U	S14	E68	.925		7.5	30D	SN	2	C		.83				DE
HERS	02	0947E	1004	0949U	S13	E67	.918	12336	7.4	17D	1N		P	0949	.89	2.40			D
RAMY	02	1329	1341	1331	S14	E65	.905		7.4	12	SF	2	C		.37				DE
UPIC	02	1330	1350	1335	S15	E69	.932	12336	7.7	20	1N		P	1335	1.68				
ATHN	02	1330E	1342	1331	S15	E68	.925		7.7	12D	SN	3	V		.33				DE
RAMY	02	1508	1527	1515U	S12	W52	.788		28.7	19	SF	4	V		.28				DE
CATA	02	1510	1600	1520	S09	W53	.797	12323	28.7	50	1N		C	1520	2.02	3.35		(200)	
ATHN	02	1514E	1528	1515	S11	W56	.828		28.4	14D	SF	3	V		.33				DE
MANI	03	0830	0859D	0836	S16	E50	.772		7.1	29D	2B	2		0836	5.67	8.74			ZH
CATA	03	0830	0940	0840	S16	E49	.761	12336	7.0	70	3B		C	0840		16.99		(457)	
ISTA	03	0831	0915		S16	E50	.772	12336	7.1	44	3B								V
TEHR	03	0840E	0931	0840U	S12	E49	.756	12336	7.0	51D	2B	3	C		9.48				S 9
TEHR	04	1412	1448	1420	S13	E37	.611		7.4	36	SN	3	C		.45				F
CATA	04	1415	1455D	1440	S13	E38	.624	12336	7.4	40D	1N		P	1440	1.73	2.22		(200)	
RAMY	04	1418	1626	1423	S12	E40	.648		7.6	128	SF	4	C		.46				U F
RAMY	04			1446							SF				.93				
CATA	04	1518E	1515D	1510	S13	E37	.611		7.4	5D	SB		P	1510	1.44	1.83		(229)	
CATA	05	0630	0715D	0700	S15	E23	.427		7.0	45D	SN		P	0700	1.16	1.28		(191)	
ATHN	05	0632	0643	0634	S15	E26	.469		7.2	11	SF	2	C		.17				DE
MITK	05	0636	0701D	0650	S16	E28	.502	12336	7.4	25D	1F		C	0650	2.17	2.50			E
ATHN	05	0655	0708	0658	S15	E23	.427		7.0	13	SF	2	C		.50				DE
TEHR	05	0701	0724	0703	S14	E19	.364		6.7	23	SN	3	C		.36				F
MANI	05	0702E	0711D	0702U	S15	E23	.427		7.0	9D	SN	2		0702	.62	.68			
ATHN	05	0924	1001	0933	S15	E21	.399	12336	7.0	37	1B	3	C		2.15				U F
CATA	05	0925	1000D	0935	S15	E21	.399	12336	7.0	35D	1N		P	0935	2.60	2.84		(182)	
UPIC	05	0936	0943U	0941	S16	E20	.393		6.9	7U	SB		P	0941	1.68				
MANI	05	0936E	0945D	0936U	S14	E22	.407	12336	7.1	9D	1N	1		0936	2.27	2.46			F
RAMY	05	1654	1735D	1700	S15	E20	.385		7.2	41D	SF	4	C		.46				Z F
RAMY	05			1710							SN				1.70				
MCMA	05	1655	1702	1658	S16	E16	.341	12336	6.9	7	SF		C	1658	.41	.40			E
MCMA	05	1703	2038	1719	S16	E18	.367	12336	7.1	207	2B		C	1719	6.19	6.60			FILMXV
PALE	05	1731E	1822D	1731U	S16	E20	.393	12336	7.2	51D	2N	2	C		7.32				Z U
PALE	05			1741U							2N				11.24				
MANI	06	0904	0925D	0908	S13	E12	.208		7.3	21D	SN	1		0908	1.13	1.18			F
MANI	06			0915							SN			0915	1.65	1.71			F
CATA	06	0905	0935	0915	S14	E10	.247	12336	7.1	30	1B		C	0915	2.02	2.09		(229)	
ATHN	06	0907E	0929	0907U	S15	E08	.239		7.0	22D	SN	3	V		1.32				F
TEHR	06	0908E	0928	0910	S12	E10	.224		7.1	20D	SN	4	V		.66				F
ISTA	07	0730	0751		S14	W00	.181		7.3	21	SF								
MANI	07	0731E	0805D	0731U	S13	W00	.164		7.3	34D	SN	2		0731	1.13	1.15			F
WEND	07	0739E	0756		S14	W01	.182	12336	7.2	17D	1N		V		4.13				
ATHN	07	0740E	0759	0742	S14	W02	.184		7.2	19D	SN	3	V		.33				DE
MANI	07	0836	0854D	0850	S15	W05	.216		7.0	18D	SN	2		0850	.93	.94			F
ISTA	07	0837	0914		S15	W03	.205		7.1	37	SN								
ATHN	07	0838E	0911	0842	S14	W04	.193		7.1	33D	SN	3	V		1.32				DE
TEHR	07	0838	0913	0848	S15	W04	.209	12336	7.1	35	1N	3	V		2.64				F
ATHN	09	0620	0658D	0623	S13	W44	.701		6.0	38D	SF	1	C		.66				U F
TEHR	09	0621E	0810	0650	S15	W44	.705	12336	6.0	109D	1F	3	V		2.19				F
TEHR	09	0625E	0750	0644	S18	W41	.678	12336	6.2	85D	1F	3	V		2.06				F
BUCA	09	0625	0800		S14	W43	.691	12336	6.0	95	1N		P	0651	3.32	4.60			S
MANI	09	0626E	0635D	0626U	S14	W43	.691		6.0	9D	SN	1		0626	.41	.43			
ISTA	09	0630	0730		S12	W49	.758		5.6	60	SN								B
MANI	09	0703E	0716D	0703U	S14	W44	.703	12336	6.0	13D	1N	1		0703	2.86	2.90			

SOLAR FLARES

PARTIAL LISTING

Solar Flares for which at least one observatory has assigned a numerical importance of "1" or greater.

MAY 1973

OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM-POR-TANCE	OBS.		MEASUREMENTS					REMARKS
	DATE MAY	START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	NOAA/TH PLAGE REGION	CMP DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT. %	
MITK	15	0145	0205	0150	N05	E90	1.000	12352	21.8	20	1N		C	0150	1.65				EH
MANI	16	0455E	0535	0458	N05	E70	.942	12352	21.5	40D	1N	2		0458	2.06	4.42			FS
TEHR	16	0455	0525	0500	N05	E69	.936	12352	21.4	30	1N	4	V		1.55				F
MANI	17	0702	0723	0706	N06	E53	.805		21.3	21	SN	1		0706	1.03	1.69			F
TEHR	17	0704	0745	0712	N07	E52	.796		21.2	41	SN	3	C		1.08				F
CATA	17	0705E	0725D	0720	N04	E54	.813		21.3	20D	SN		P	0720	.87	1.49		(182)	
UPIC	17	0707E	0753	0709	N05	E54	.814	12352	21.3	46D	1B		P	0709	2.53				
ISTA	17	0710	0745		N07	E52	.796	12352	21.2	35	1N								F
ISTA	17	0850	0910		N07	E56	.836	12352	21.6	20	1F								E
RAMY	17	1346	13510	1350U	N06	E50	.773	12352	21.3	5D	1N	3	C		2.13				F
RAMY	17	1352	1430	1356	N07	E50	.775	12352	21.3	38	1N	3	V		1.86				F
TEHR	17	1354	1432	1358	N06	E49	.762		21.3	38	SN	3	C		1.45				F
MCMA	17	1426E	14460		N02	E49	.757	12352	21.3	20D	SN		C	1430	.31	.50			D
MCMA	17	1908E	19270		N06	E52	.795	12352	21.7	19D	SN		P	1926	.41	.70			E
PALE	17	1908E	19260	1911U	N07	E54	.816	12352	21.8	18D	1N	2	V		1.44				DE
MCMA	18	1525	1555	1532	N06	E41	.666	12352	21.7	30	1B		C	1532	1.55	2.10			F
UPIC	18	1529E	1604U		N07	E42	.681		21.8	35U	SB		P	1529	1.47				
CATA	18	1530	16000	1540	N07	E42	.681	12352	21.8	30D	1B		P	1540	2.31	3.16		(269)	
PALE	19	2233	2320	2245	N09	E20	.389	12352	21.4	47	1B	2	C		2.89				U H
MANI	19	2259E	23010	2259U	N12	E21	.427	12352	21.5	2D	1B	2		2259	2.37	2.62			H
TEHR	20	0448	0520	0451	N10	E16	.342	12352	21.4	32	1B	3	C		2.11				F
MANI	20	0449	0519	0452	N10	E13	.304		21.2	30	SB	1		0452	1.55	1.62			F
MANI	21	0847	0915D	0849	S09	E56	.838		25.6	28D	SN	1		0849	.83	1.42			F
CATA	21	0850	0915	0855	S08	E56	.838	12357	25.6	25	1N		C	0855	1.44	2.59		(166)	
TEHR	21	0852E	0906	0856U	S05	E57	.838		25.6	14D	SF	4	V		1.32				F
MITK	21	2240	2306	2244	N15	W90	1.000	12358	15.2	26	1N		C	2244	1.13				E
MITK	22	0133	01390	0136	N15	W90	1.000	12358	15.3	6D	1N		C	0136	.72				D
CATA	22	0640	0910	0820	N17	W90	1.000	12358	15.5	150	1F		C	0820	.87			(135)	T
CATA	22	1100	11100	1100	N16	W90	1.000	12358	15.7	10D	1F		P	1100	.58			(120)	T
UPIC	22	1429	1447U		N16	W90	1.000	12358	15.9	18U	1N		P	1432	.42				
PALE	22	1716E	1805	1719	N12	W21	.424		21.1	49D	SN	3	C		.99				F H
WEND	22	1718E	18000		N13	W20	.420	12352	21.2	42D	1N		V		5.16				
UPIC	22	1722E	17490		N14	W13	.349		21.7	27D	SN		P	1722	1.98				F
MITK	23	2352	2450	2420	S15	W90	1.000	12349	17.2	58	1N		C	2420	.83				D
MANI	23	2353	0030	0005	N14	W37	.642	12352	21.2	37	1N	2		0005	1.86	2.43			FE
PALE	23	2354	0034	0002	N15	W36	.634		21.3	40	SN	3	C		1.54				U
MITK	24	0128E	02080	0146	S15	W90	1.000	12349	17.3	40D	1N		C	0146	1.03				DH
MANI	24	0657	0730	0700	N14	W40	.677	12352	21.3	33	1B	2		0700	2.06	2.78			FE
TEHR	24	0708E	0740	0706	N14	W37	.641		21.5	40D	SB	4	V		1.44				F
BUCA	24	0700	0820		N14	W40	.677	12352	21.3	80	1B		C	0701	2.21	2.90			
CATA	24	0705	0750	0720	N14	W40	.677	12352	21.3	45	1N		C	0720	2.02	2.75		(186)	
CATA	24	0720	0815	0740	S15	W90	1.000	12349	17.6	55	1F		C	0740	.58			(123)	
CATA	24	0845	0900	0850	S15	W90	1.000	12349	17.6	15	1N		C	0850	.58			(155)	
CATA	24	0930	0955	0945	S14	W90	1.000	12349	17.6	25	1F		C	0945	.58			(126)	
RAMY	24	1208	1237	1214	S04	E20	.344		26.0	29	SN	4	C		1.30				F
WEND	24	1208	1236		S05	E22	.378	12357	26.2	28	1N		V		5.16				
CATA	24	1210	1250	1220	S06	E20	.349	12357	26.0	40	1B		C	1220	2.02	2.16		(224)	
MCMA	24	1210	1240		S06	E19	.333	12357	25.9	30	SN		P	1225	.62	.60			E
TEHR	24	1221E	12220	1221U	S05	E25	.425		26.4	1D	SN	3	C		1.00				F
MITK	25	0152	0252	0211	N13	W53	.814	12352	21.1	60	1N		C	0211	1.65	2.90			E
TEHR	25	0153E	0251	0203	N14	W50	.787		21.3	58D	SN	2	V		1.32				F
MANI	25	0200E	02300	0200U	N16	W53	.821	12352	21.1	30D	1N	2		0200	1.55	2.62			FU
PALE	25	0218E	0303	0219U	N14	W53	.817	12352	21.1	45D	1N	2	V		1.65				F
RAMY	28	1735	18040	1739	S01	W49	.755		25.1	29D	SB	3	V		1.32				Z F
MCMA	28	1736E	17460		N02	W48	.744	12357	25.1	10D	SB		C	1742	.41	.60			E
UPIC	28	1739E	1747	1742	N02	W50	.767	12357	25.0	8D	1B		P	1742	2.10				
PALE	28	1741E	1757	1741U	N01	W49	.755		25.1	16D	SB	4	C		.99				F
WEND	28	1743E	17560		S01	W50	.766		25.0	13D	SN								

"Remarks":

A = Eruptive prominence, base at >90°
B = Probably the end of a more important flare.
C = Invisible 10 minutes before.
D = Brilliant point.
E = Two or more brilliant points.
F = Several eruptive centers.
G = No spots visible in the neighborhood.
H = Flare with high velocity dark surge.
I = Very extensive active region.
J = Plage with flare shows marked intensity variations.
K = Several intensity maxima.
L = Filaments show effects of sudden activation.
M = White-light flare.
N = Continuous spectrum shows effects of polarization.
O = Observations have been made in the calcium II lines H or K.
P = Flare shows helium D_3 in emission.
Q = Flare shows the Balmer continuum in emission.
R = Marked asymmetry in Hα line.
S = Brightening follows disappearance of filament (same position).
T = Region active all day.
U = Close and somewhat parallel bright filaments (|| or Y shape).
V = Occurrence of an explosive phase.
W = Great increase in area after time of maximum intensity.
X = Unusually wide Hα emission.
Y = Onset of a system of loop-type prominences.
Z = Major sunspot umbra covered by flare.

Note: Catania and Capri-S express Maximum Intensities in percent of the local undisturbed chromosphere instead of percent of the local continuum. Parentheses are used to indicate this difference.

SOLAR FLARES

Date, time (UT) and coordinates of Subflares not included in preceding table.

MAY 1973

01 0243	N12 W90	01 0921	S14 E51	01 1650	S13 E69	01 2031	S16 E72	02 0032	S12 E70	02 0356	S16 E54
02 0422	S13 E66	02 0512	S10 W47	02 0517E	S10 W48	02 0730	S14 E66	02 0730	S13 E65	02 0731E	S14 E65
02 0732	S13 E66	02 0738E	S14 E63	02 0855	S10 W51	02 0940	S08 W53	02 1135	S13 E62	02 1149	S14 E63
02 1149	S12 E62	02 1149E	S13 E61	02 1526	S12 E61	02 1528	S15 E68	02 1615E	S12 E62	02 1620E	S15 E68
02 1753E	S12 E61	02 1754	N15 E62	02 1755E	S14 E65	02 1806E	S13 E58	02 1840E	S12 E60	02 1840E	S12 E60
02 2039	S14 E61	02 2339	S15 E59	02 2039E	S15 E57	02 2148	S11 E58	02 2152E	S14 E56	02 2155E	S12 E59
02 2222	S18 W58	02 2255	S09 W59	02 2313	S15 E58	02 2320	S13 E61	02 2345	S12 E59	03 0009E	S18 W59
03 0017	S13 E56	03 0024E	S14 E58	03 0050E	S11 E55	03 0055	S10 W56	03 0056	S09 W59	03 0143	S15 E53
03 0145E	S18 W60	03 0145E	S15 E53	03 0200	S09 W59	03 0322E	S14 E50	03 0327	S18 W60	03 0354E	S16 E54
03 0356	S16 E54	03 0414E	S13 E52	03 0537	S13 E52	03 0603	S14 E50	03 0603	S15 E49	03 0727E	S13 E46
03 0743E	S12 E50	03 1145	S13 E47	03 1719	S17 E80	03 1734	S15 E45	03 1734	S14 E45	03 1911	S13 E44
03 1913E	S13 E47	03 1929	S12 E64	03 1931	S14 E65	03 1942	S15 E48	03 2059	S13 E43	03 2200	S13 E47
03 2339E	S03 W76	04 0105E	S14 E45	04 0107	S08 W81	04 0236	S13 E41	04 0236	S13 E41	04 0249E	S15 E39
04 0356E	S12 E41	04 0405	S10 W71	04 0440E	S14 E42	04 0605E	S15 E38	04 0608E	S16 E39	04 0610	S14 E38
04 0618E	S13 E35	04 0623E	S15 E40	04 0939	S15 E48	04 1130	S13 E41	04 1203	S13 E79	04 1210	S13 E35
04 1235	S14 E44	04 1236	S13 E39	04 1237	S13 E35	04 1239	S13 E41	04 1243	S13 E35	04 1327	S13 E35
04 1839	S15 E32	04 1843E	S16 E31	04 1917E	S16 E30	04 1936	S13 E32	04 2030	S12 E32	04 2032	S14 E31
04 2033E	S13 E33	04 2033E	S13 E33	04 2039	S14 E33	04 2245E	S14 E31	04 2301E	S15 E32	05 0006	S13 E29
05 0011	S13 E29	05 0011	S13 E30	05 0159	S14 E31	05 0159	S14 E30	05 0159	S14 E30	05 0248	S09 W89
05 0258	S07 W86	05 0258E	S08 W88	05 0401E	S14 E19	05 0418	S12 E47	05 0419	S12 E46	05 0423	S13 E65
05 0423	S12 E67	05 0423	S13 E67	05 0424	S16 E23	05 0426	S14 E19	05 0451	S15 E24	05 0452	S15 E26
05 0452	S15 E26	05 0452	S15 E25	05 0521	S15 E26	05 0521	S14 E19	05 0522	S15 E25	05 0529E	S16 E25
05 0640	S15 E39	05 1052	S15 E21	05 1052	S15 E21	05 1105	S15 E21	05 1110	S16 E20	05 1120	S12 E22
05 1123E	S16 E20	05 1133	S14 E25	05 1138	S12 E22	05 1140E	S11 E26	05 1158	S13 E22	05 1159	S15 E23
05 1159	S16 E20	05 1159E	S12 E19	05 1200	S13 E24	05 1204E	S15 E22	05 1623	S13 E22	05 1625	S15 E22
05 1625	S14 E21	05 1625	S14 E22	05 1923E	S17 E16	05 2120E	S15 E26	05 2312E	S17 E18	05 2314	S15 E12
06 0033	S12 E22	06 0035	S12 E22	06 0036	S12 E21	06 0045	S13 E15	06 0049E	S14 E17	06 0218	S13 E12
06 0220	S13 E11	06 0317	S13 E10	06 0319	S15 E11	06 0425	S12 E09	06 0431	S13 E15	06 0431	S13 E14
06 0433E	S13 E15	06 0442	S12 E12	06 0443	S13 E12	06 0445	S09 E07	06 0750	S12 E14	06 0752	S13 E14
06 0753E	S12 E10	06 0939E	S10 E16	06 1019E	S13 E08	06 1020	S13 E07	06 1023E	S11 E38	06 1035	S15 E17
06 1036	S14 E17	06 1136	S11 E10	06 1137E	S14 E10	06 1153E	S15 E07	06 1154E	S13 E07	06 1210	S13 E10
06 1211E	S12 E10	06 1213E	S13 E09	06 1231E	S13 E10	06 1457E	S15 E07	06 1457	S15 E15	06 1459E	S15 E15
06 1643E	S15 E15	06 1736	S16 E04	06 1737E	S15 E08	06 1737E	S16 E02	06 1740E	S15 E04	06 1821E	S15 E04
06 1952	S15 E04	06 2106E	S17 W03	06 2108E	S18 W04	07 0016E	S16 W01	07 0035E	S13 E00	07 0055E	S16 W06
07 0105	S17 W06	07 0110	S16 W07	07 0202	S16 W07	07 0231	S16 W03	07 0252E	S17 W04	07 0324E	S18 W05
07 0403E	S16 W09	07 0403	S17 W08	07 0405	S08 W05	07 0406E	S16 W08	07 0437	S13 W04	07 0446	S15 E07
07 0501	S15 W03	07 0505E	S16 W03	07 0517	S16 W09	07 0534E	S14 W00	07 0637	S13 E01	07 0650E	S13 W01
07 0725	S15 W01	07 1031	S14 W12	07 1039	S15 W11	07 1100E	S17 W09	07 1151E	S12 W12	07 1152	S13 W08
07 1315E	S13 W00	07 1921	N14 W08	07 1923E	N12 W07	07 1948	S17 W13	07 1953E	S17 W03	07 2001E	S18 W04
07 2001E	S18 W04	07 2035	S14 W11	07 2053E	S18 W14	07 2108E	S13 W10	07 2223E	S19 W07	07 2228	S16 W15
07 2228E	S15 W16	07 2315E	S21 W09	07 2330	S15 W10	08 0022	S17 W22	08 0327	S14 W15	08 0327	S14 W15
08 0502E	S13 W21	08 0516	S18 W19	08 0537E	S11 W22	08 0537	S13 W20	08 0609E	S11 W22	08 1120	S12 E22
08 1122E	S14 E22	08 1134	S13 W23	08 1200	S13 W15	08 1201E	S12 W17	08 1205	S12 W16	08 2122E	S12 W23
08 2311E	S13 W26	09 0435E	S12 W25	09 0435	S13 W26	09 0436	S14 W27	09 0437E	S13 W26	09 0609E	S19 W13
09 0612	S08 W19	09 0612	S08 W20	09 1133E	S12 W22	09 1315	S13 W30	09 1630	S13 W32	10 0019	S14 W36
10 0019	S14 W36	10 0551E	S14 W45	10 0550E	S14 W45	10 0646E	S14 W45	10 1534	S12 W45	10 1634	S09 W41
10 1634	S09 W41	10 1638E	S07 W44	11 1458	N15 W51	11 1454	N17 W52	11 1536E	S07 W57	11 1634	S09 W41
12 0416E	S12 W63	12 0433	S13 W65	12 1517E	N00 E04	14 1252	N07 E90	14 1434	N11 E90	14 1706	N07 W24
15 0408E	S09 E37	15 1154	S09 E31	16 0958	N09 W10	17 0526	N05 E55	17 0721E	N08 E53	17 1340	N07 E56
17 1344	N09 E54	17 2258	N07 E46	17 2302	N01 E45	18 0025	N08 E45	18 0026E	N39 E45	18 0348	N09 E44
18 0353	N07 E49	18 0458	N10 E41	18 0503	N09 E43	18 0628	N10 E43	18 0630	N11 E41	18 0800	N13 E40
18 0801	N14 E42	18 1058E	N12 E48	18 1102E	N11 E42	18 1153E	N11 E36	18 1259E	N10 E38	18 1308E	N05 E36
18 1313E	N06 E37	18 1312	N05 E38	18 1315	N05 E37	18 1315	N02 E37	18 2048	N11 E29	18 2154	N09 E33
18 2154	N09 E33	18 2159E	N10 E32	18 2235E	S03 E90	18 2301	N08 E37	19 0003	N06 E38	19 0005E	N05 E27
19 0055	N06 E24	19 0133E	N38 E25	19 0923E	N11 E27	19 1003	N10 E27	19 1009E	N13 E26	19 1555E	N12 E24
19 1600	N10 E25	19 1656	N07 E26	19 1842E	N11 E23	19 2220E	N09 E21	20 0328	N11 E18	20 0348	N11 E18
20 0527	S10 W33	20 0555E	S10 W33	20 0559E	N10 E13	20 0930	N09 E13	20 0947E	N10 E12	20 1041	N10 E11
20 1135	N09 E12	20 1140	N39 E12	20 1141	N08 E12	20 1255	N08 E12	20 1255	N10 E11	20 1255	N09 E12
20 1447	N08 E12	20 1451	N09 E10	20 1600E	S10 E65	20 1601	S12 E66	20 1653	N39 E09	20 1827E	N09 E08
20 2016	N08 E08	20 2155E	N11 E08	20 2228E	N08 E06	21 0319	N08 E04	21 0336	N12 E02	21 0359	N09 E02
21 0401	N10 E02	21 0407E	N38 E05	21 0447	N10 E02	21 0627E	N14 E04	21 0635	N10 E01	21 0636	N10 E02
21 0641E	N09 E01	21 0657	N12 E00	21 0703	N11 W00	21 0808	N07 E01	21 0815	N36 W03	21 0819	N07 E08
21 1114	N10 W02	21 1115	N13 W01	21 1117E	N11 W01	21 1145	N11 W01	21 1155	N12 W02	21 1205	N11 W02
21 1210	N10 W02	21 1211E	N11 W02	21 1215	N10 W01	21 1551E	N12 W04	21 1638E	N11 W04	21 1639	N10 W04
21 1640E	N11 W04	21 1643E	N10 W04	21 1751E	N09 W07	21 1753E	N12 W06	21 1753E	N36 W39	21 1755E	N17 W80
21 1755E	N07 W09	21 1852E	N15 W86	21 1903E	N17 W80	21 2143E	N11 W07	21 2217E	N13 W84	21 2217E	N11 W08
22 0038	N09 W12	22 0922	N09 W13	22 0925	N09 W14	22 0933	N10 W13	22 1048	N15 W10	22 1915	S06 E48
22 1917	N16 W12	22 1919	N14 W13	23 0236	S10 W57	23 0302	S10 W71	23 0306	N10 W24	23 0532	N11 W26
23 0533	N10 W25	23 0623	N13 W27	23 0620	N13 W27	23 0621	N10 W27	23 1210	S14 W80	23 1849E	N02 E34
24 0533	N10 W25	24 0623	N14 W39	24 1238E	S03 E10	24 1649	N10 W46	24 1653	S06 E19	24 1718	S05 E22

SOLAR FLARES

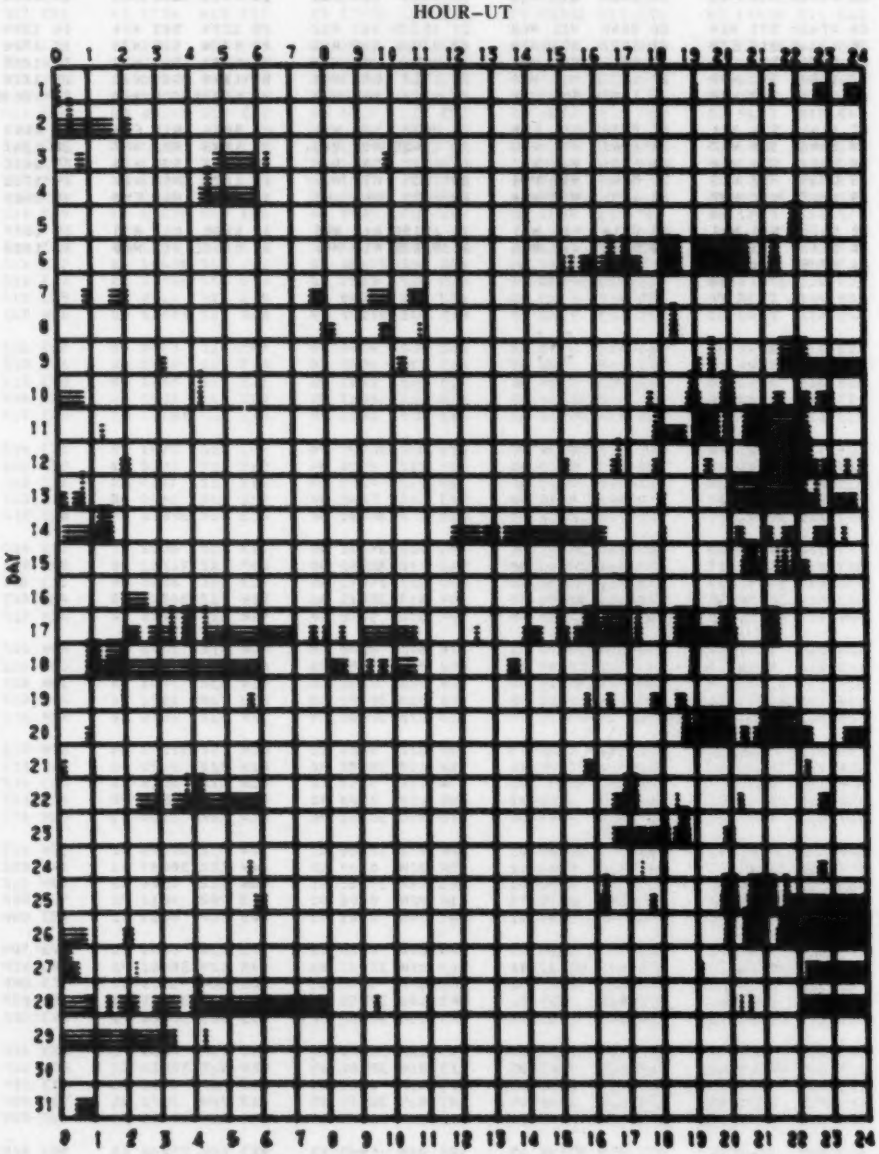
MAY 1973

24	1818	N15	W47	24	1818	N15	W47	24	1823E	N16	W46	24	1906	N09	W41	24	1953E	S03	E07
24	2340	S04	E04	24	2344	S04	E04	24	2344	S04	E04	24	2344	S04	E04	25	0239	S03	E02
25	0507	S01	E04	25	0508	S01	E02	25	0624E	N13	W56	25	0655	N16	W56	25	0655	N16	W54
25	0658E	N14	W51	25	0742	S10	E00	25	1427	S05	W01	25	1522	S01	W05	25	1622E	N14	W62
25	1749E	S01	W06	25	1751E	S01	W06	25	1814	N17	W55	26	0014	N09	W60	26	0453	S02	W09
26	0739	S01	W12	26	0743E	S01	W14	26	0846	N11	W63	26	1033E	S01	W12	26	1234	S02	W14
26	1621E	N17	W72	26	1834E	N12	E36	27	0057	S03	W29	27	0337E	S05	W13	27	0724	S05	W25
27	0735E	S06	W15	27	0936E	S00	W33	27	0940	N01	W32	27	1202	S02	W32	27	1203	S01	W32
27	1208E	S00	W35	27	1208E	S00	W37	27	1223E	N15	W80	27	1317	S02	W31	27	1318	S01	W32
27	1321E	N01	W36	27	1321E	S02	W35	27	1417E	S00	W37	27	1418	S01	W33	27	1608E	S00	W41
27	1644	S01	W34	27	1644	S14	W21	27	2238E	S11	E48	28	0033	S01	W38	28	0056	N12	E18
28	1115	S01	W45	28	1240E	S00	W47	28	1241	S01	W46	28	1242E	N01	W46	28	1245	N02	W47
28	1558E	S04	W37	28	1603	S04	W35	28	1631	N01	W47	28	1712	S01	W48	28	1858	S05	W36
29	0432E	S00	W53	29	0535	N18	W19	29	0647	N17	W19	29	1131	N17	W23	29	1220	N18	W24
29	1311E	N18	W23	29	1517	N17	W27	29	1735	N17	W27	29	1921	N02	W63	30	0435E	N14	E53
30	0615	S05	W68	30	0655	N16	W41	30	0814	N16	W38	30	1115E	N16	W48	30	1156	N17	W38
30	1814	N14	W42	30	1815	N16	W43	31	0105	N16	W46	31	0107E	N18	W47	31	0352E	N15	W68
31	1324	N21	W80	31	1326E	N21	W80												

INTERVALS OF NO FLARE PATROL OBSERVATION

FOR PRECEDING SOLAR FLARE TABLE

MAY 1973



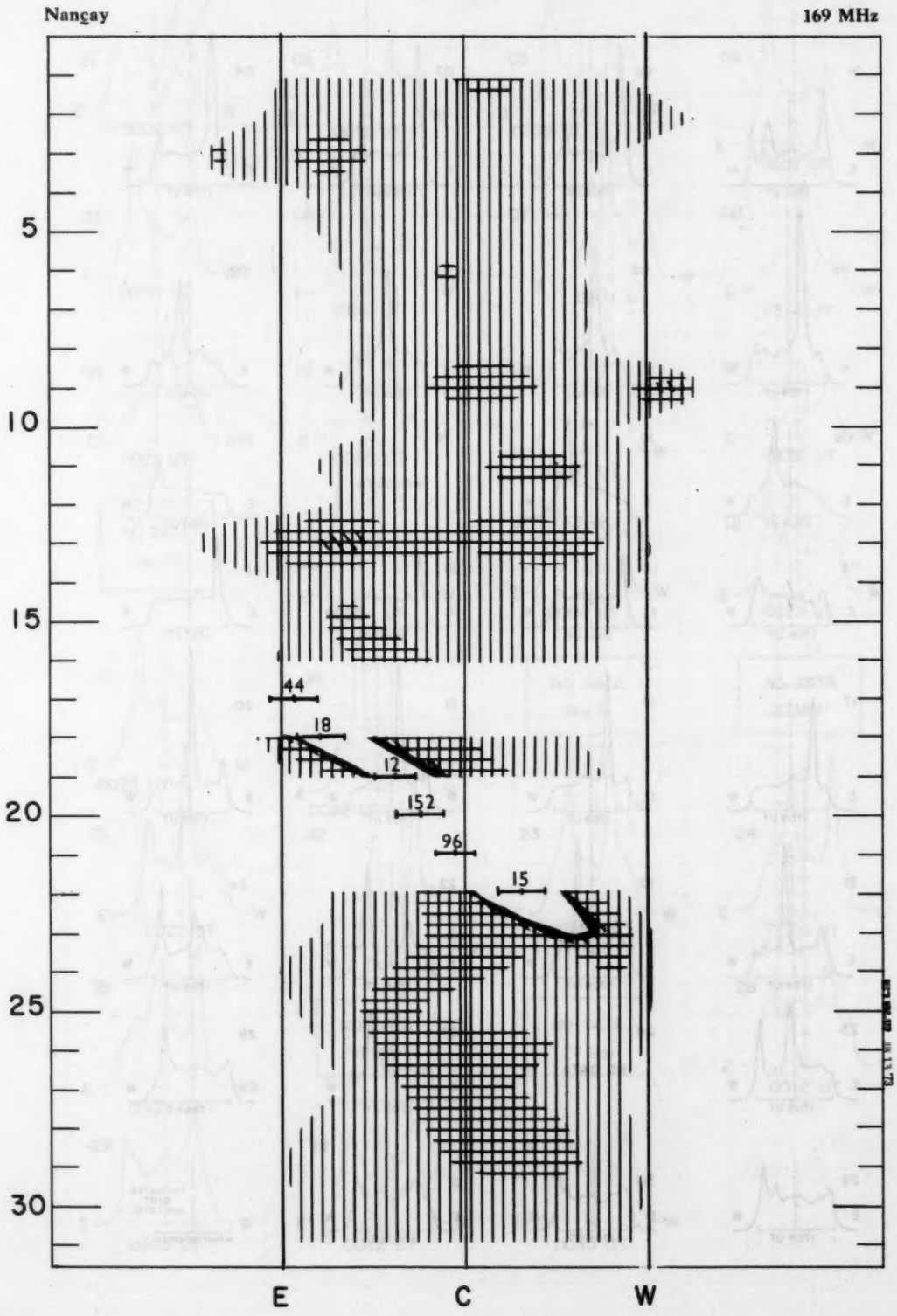
Observatories included in total patrol:

Athens	Catania	Manila	Palehua	Upice
Bucharest	Herstmonceux	McMath-Hulbert	Ramey	Wendelstein
Capri-F (German)	Istanboul	Mitaka	Tehran	

Times of no flare patrol are shown by the shaded area for each day divided into times of no cinematographic patrol (bottom half of day) and times of neither visual nor cinematographic patrol (top half of day).

SOLAR RADIO EMISSION
INTERFEROMETRIC OBSERVATION

MAY 1973

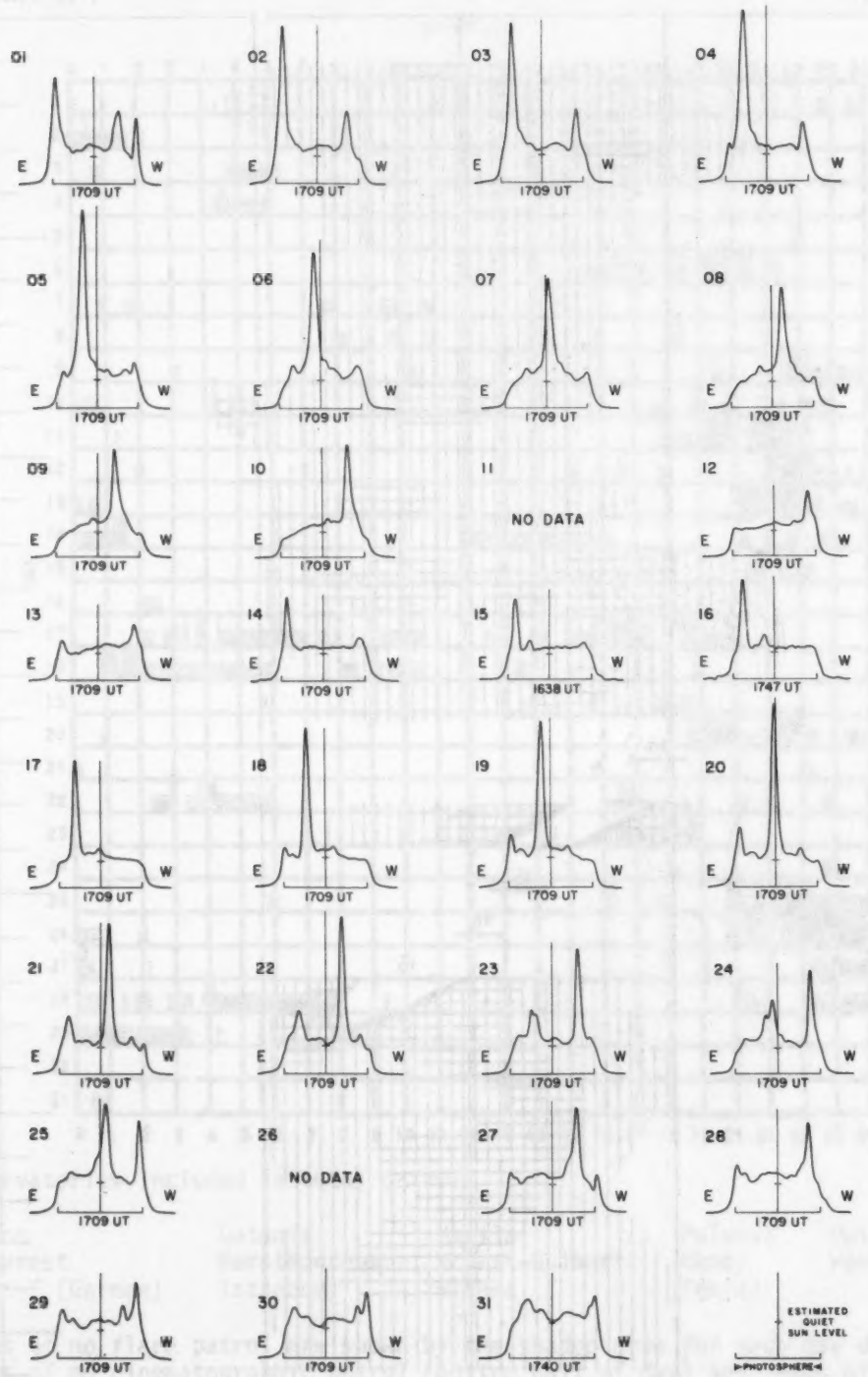


EAST-WEST SOLAR SCANS

May 1973

ALGONQUIN RADIO OBSERVATORY
CANADA

10.7 cm
Fan-Beam with 1.5 minutes of arc
E-W Resolution



EAST-WEST SOLAR SCANS

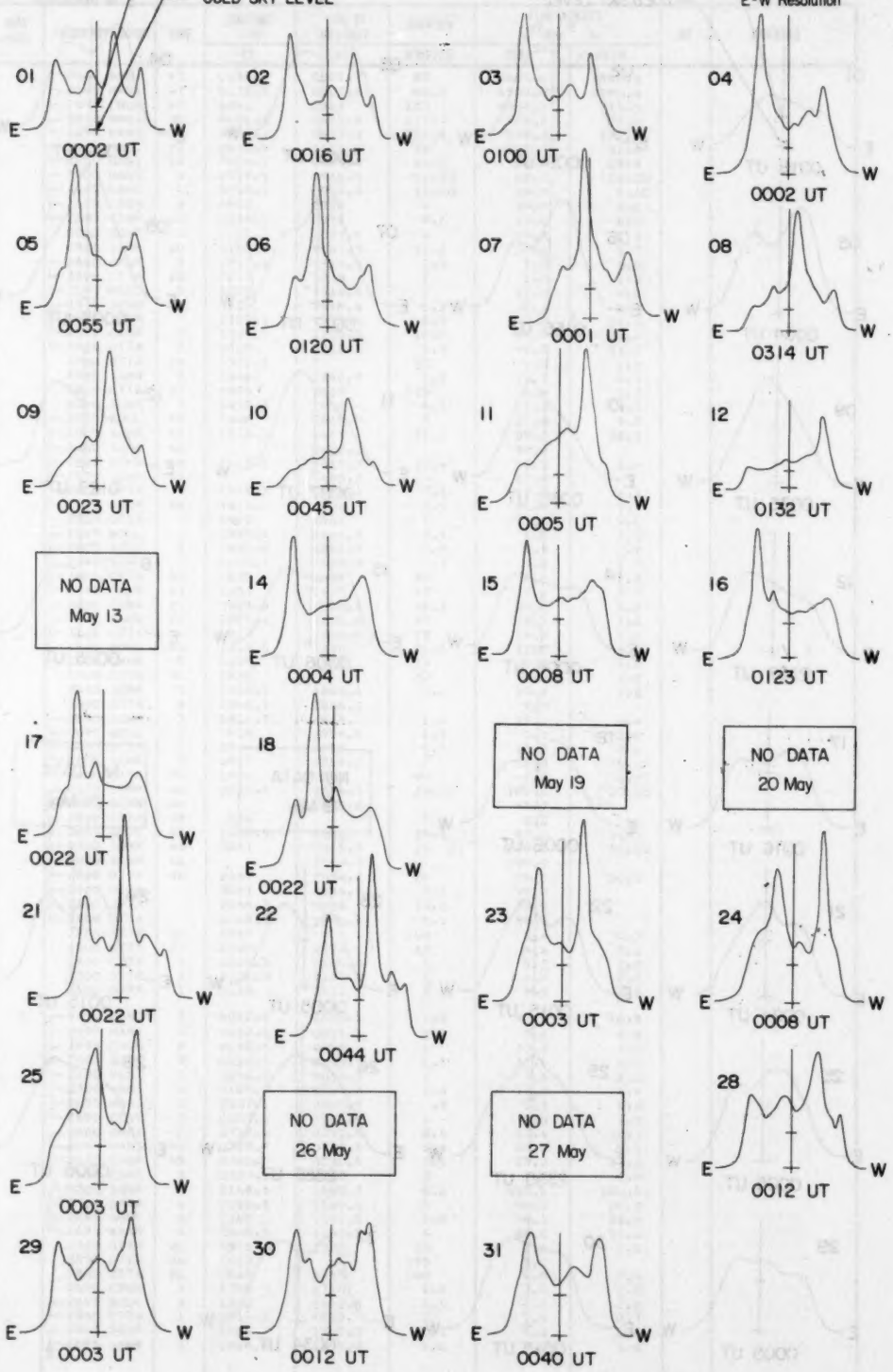
MAY 1973

Fleurs, Australia

ESTIMATED QUIET SUN LEVEL

COLD SKY LEVEL

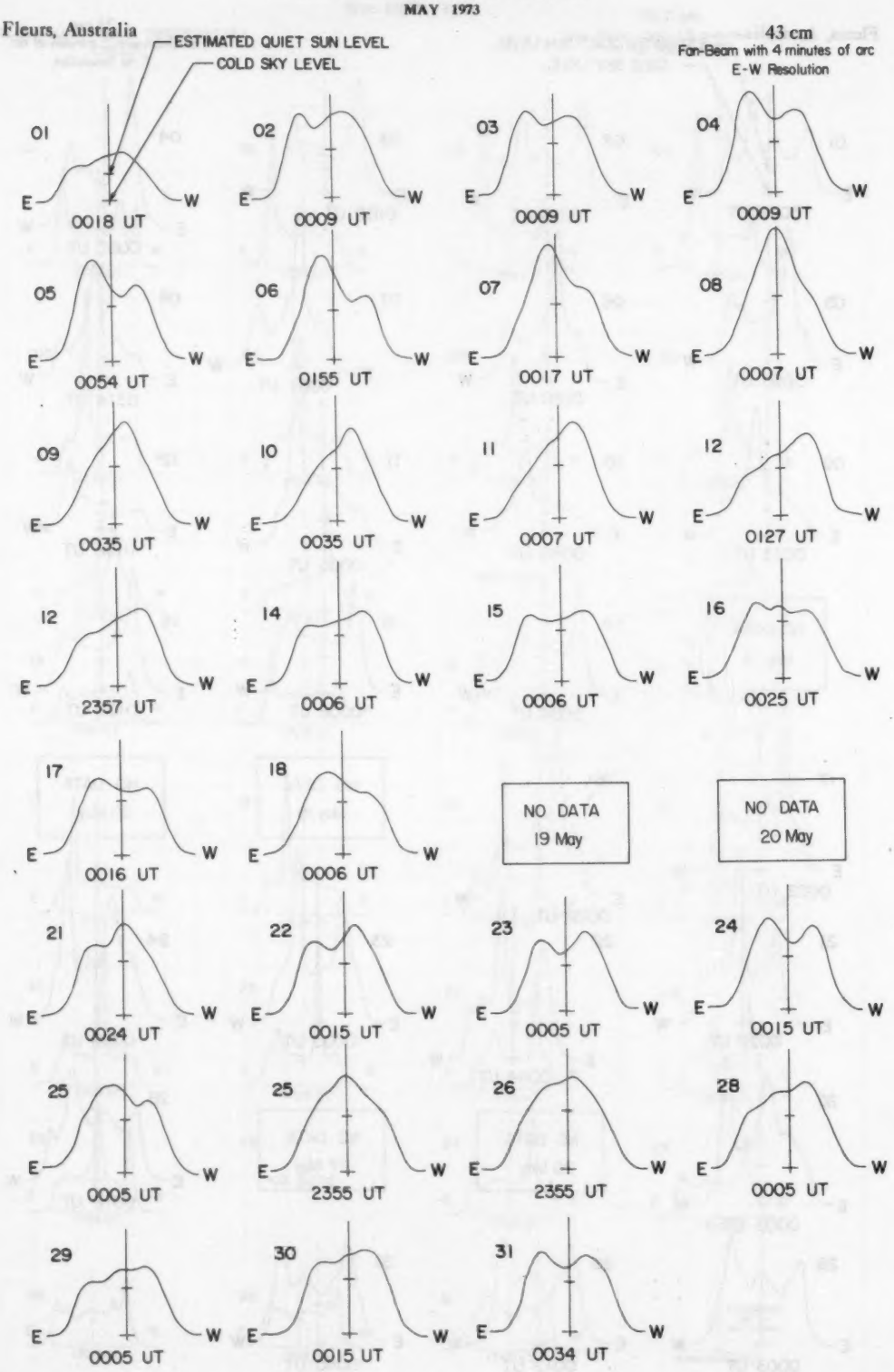
21 cm
Fan-Beam with 2 minutes of arc
E-W Resolution



EAST-WEST SOLAR SCANS

MAY 1973

Fleurs, Australia



SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

MAY 1973

MAY 1973	FREQUENCY STATION	TYPE	STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	REMARKS
			UT	UT	MINUTES	PEAK	MEAN		
1	8800 MANI	47	0238.8	0321.7	83	5000.0	2800.0		
	2695 MANI	47	0238.8	0307.8	88.5	4500.0	1780.0		
	2695 CRON	47	0242	0308	199	3914.0	314.0		
	8800 MANI	30	0401.8	0401.8	213.3	310.0	73.0		
	2695 MANI	30	0407.3	0407.3	204.4	350.0	100.0		
	2695 MANI	22	0418.6	0439.9	29	102.0	31.5		
	8800 MANI	22	0424.1	0439.9	25.2	82.0	18.3		
	8800 MANI	4	0913.3	0916.3	11.9U	62.0	18.3U		
	2695 MANI	4	0913.2	0914.8	11.8U	16.3	8.2U		
	2695 CRON	3	0913	0914	4	10.0	4.0		
	2695 CANR	45	0914.5	0916	8.5	19.0	6.0		
	8800 SGMR	3	1111.1	1111.5	6	18.3	7.2		
	8800 SGMR	20	1152.5	1157.3	12.2	10.6	5.3		
	2695 CANR	3	1317.5	1318.5	1.5	3.0	1.0		
	2800 OTTA	28	1317	1318	2	2.0	1.0		
	2695 BOUL	8	1318	1318.5	2	12.0	4.0		
	8800 SGMR	3	1319	1319.4	5.3	20.1	8.0		
	2695 SGMR	3	1319.1	1319.4	6.3	40.0	16.0		
	2695 CANR	8	1319.5	1320.5	10.5	43.0	16.0		
	2800 OTTA	3	1319	1319.3	3.5	49.0	13.0		
	2800 OTTA	29	1322.5		21	4.0	1.5		
	8800 SGMR	3	1346	1346.9	3.8	17.1	6.4		
	2800 OTTA	21	1355	1515	315	6.4	3.2		
	8800 SGMR	3	1407.5	1408	4.5	11.2	4.3		
	2695 BOUL	45	1408	1419.5	6	10.0	3.0		
	8800 SGMR	46	1418.2	1419	13.3	89.0	38.1		
	8800 SGMR	46		1420.2		97.0			
	2695 SGMR	46	1418.3	1419.2	12.4	13.0	4.4		
	2695 SGMR	46		1420.2		13.4			
	2800 OTTA	4	1418.5	1420.1	7.5	13.8	4.6		
	2695 CANR	45	1419.5	1421	7.5	14.0	5.0		
	2800 OTTA	1	1440	1442	4	1.2	0.6		
	2695 BOUL	3	1559.5	1601.5	9.5	6.0	2.0		
	8800 SGMR	1	1600.6	1602.3	3.9	5.9	2.9		
	2695 SGMR	1	1600.7	1603.6	9.9	4.0	2.0		
	2800 OTTA	20	1600	1604	30	5.2	1.8		
	2695 CANR	21	1601	1605	17	7.0	2.0		
	8800 SGMR	23	1823.8	1830.8	36.3	20.2	4.8		
	2695 SGMR	22	1823.4	1830.6	37	12.4	3.0		
	2800 OTTA	46	1823	1830.8	13	14.2	7.1		
	2695 BOUL	45	1824.5	1830	25.5	11.0	3.0		
	2695 CANR	45	1825	1832	13	13.0	4.0		
	2800 OTTA	30	1836		20	4.0	2.0		
	8800 SGMR	3	1839.7	1840.6	3.2	19.8	4.0		
	2800 OTTA	8	1846.1	1846.1		8.0			
	2695 SGMR	3	1914.9	1915.1	1.4	15.4	5.4		
	2695 BOUL	8	1914	1914.5	1.5	6.0	2.0		
	2800 OTTA	3	1914.5	1915	3.5	18.2	3.6		
	8800 SGMR	3	1915	1915.1	1	11.0	5.1		
	2800 OTTA	32	1930	1945	40	-2.0	-1.0		
	2695 SGMR	46	2025.9	2034.1	28.1U	100.0	20.0U		
	2695 SGMR	46		2038.6		96.0			
	2800 OTTA	28	2026		5	2.0	1.6		
	2695 BOUL	45	2030.5	2050	24.5	47.0	14.0		
	8800 SGMR	46	2031	2035.9	23 U	200.0	65.0U		
	8800 SGMR	46		2038.7		280.0			
	2800 OTTA	46	2031	2034.2	26	96.0	30.0		
	2800 OTTA		2031	2034.2	7.2	96.0			
	2800 OTTA		2038.2	2039	10.3	95.0			
	2800 OTTA		2048.5	2050.8	8.5	58.0			
	2800 OTTA	30	2057		108	8.4	4.2		
	2800 OTTA	21	2105	2114	65	4.6	2.6		
	2800 OTTA	1	2105.3	2105.5	1	5.2	1.8		
	2800 OTTA	1	2106.9	2107.1	1	4.0	2.0		
	2800 OTTA	1	2110	2111	2	7.2	2.8		
2	8800 MANI	3	0032.8	0033.1	1.2	42.0	16.8		
	2695 MANI	1	0032.8	0033.1	1.4	9.6	4.8		
	2695 CRON	8	0032.5	0033	1	10.0	3.0		
	2695 BOUL	8	0032.5	0033.5	1.5	11.0	4.0		
	2695 PENT	1	0032.8	0033.1	2	7.6	2.6		
	8800 MANI	4	0105.7	0107.6	6.8	11.8	3.4		
	2695 MANI	2	0107.1	0107.5	.9	5.8	1.9		
	2695 PENT	2	0107.1	0107.2	1	2.0	1.0		
	8800 MANI	4	0727.5	0731.9	8.5	47.4	10.3		
	2695 MANI	40	0729.7	0731.5	6.3	63.0	9.1		
	2695 CANR	45	0731.5	0732.5	3.5	58.0	17.0		
	2695 CANR	3	0757.5	0758	2	3.0	1.0		
	8800 SGMR	4	1148.5	1149.3	8.6	410.0	160.0		
	2800 OTTA	4	1148.5	1149.5	5	76.0	19.0		
	2695 SGMR	4	1149	1149.5	3.9	74.2	26.0		
	2695 CANR	8	1149.5	1150.5	6	88.0	31.0		
	2800 OTTA	20	1305	1315	90	2.6	1.3		
	2800 OTTA	26	1510		155	3.0			
	2800 OTTA	20	1510	1535	140	4.0	2.4		
	2695 CANR	3	1709	1710	1.5	7.0	2.0		
	2695 BOUL	3	1812	1813.5	2.5	4.0	1.0		
	2800 OTTA	1	1812.5	1813	2	1.4	0.7		
	8800 SGMR	1	1858	1859.2	1.5	9.3	2.5		
	2695 SGMR	1	1858.3	1859.3	2.6	5.7	1.4		

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MAY 1973	FREQUENCY STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} MEAN	INT	REMARKS
	2695 BOUL	3	1858.5	1859.5	1.5	4.0	1.0		
	2800 OTTA	2	1858	1859.1	2	3.4	1.4		
	2800 OTTA	1	2020	2021.5	2	1.4	0.6		
	2800 OTTA	2	2036	2036.8	1	6.2	3.1		
	8800 SGMR	4	2038.7	2041.1	16.3U	300.0	75.0U		
	2695 SGMR	46	2038.8	2039.1	8.2U	83.8	20.8U		
	2695 SGMR	46		2039.8		103.7			
	2800 OTTA	46	2038.6	2041.3	7	70.0	35.0		
	2800 OTTA		2038.6	2041.3	4.6	70.0			
	2800 OTTA		2043.2	2043.7	2.4	35.0			
	2695 BOUL	45	2039	2040.5	14.5	75.0	19.0		
	2800 OTTA	30	2045.6		240 D	16.4			
	2800 OTTA	1	2050	2050.9	3.5	9.0	4.4		
	8800 MANI	47	2147.6U	2149	2.9U	590.0U	186.0U		SUNRISE
	2695 MANI	4	2147.6U	2148.9	2.8U	104.0U	41.6U		SUNRISE
	8800 SGMR	4	2148.7	2149	1.3	145.9	48.7		
	2695 BOUL	45	2148.5	2149.5	7.5	56.0	12.0		
	2800 OTTA	45	2148	2149	7	73.0	12.8		
	2800 OTTA		2148	2149	3	73.0			
	2800 OTTA		2151	2152	4	45.0			
	2695 PENT	21	2310	2342	90	6.2	5.4		
	2695 PENT	1	2425.2	2425.7	1.5	6.6	2.0		
3	2695 MANI	2	0025	0025.7	2.1	7.8	3.3		
	2695 BOUL	8	0025	0026	1.5	10.0	4.0		
	8800 MANI	22	0148.1U	0156.2	30 U	40.0U	10.0U		
	2695 MANI	40	0148.1U	0152.5	23.9U	810.0	38.5U		
	2695 CRON	45	0218	0223	25	417.0	124.0		
	2695 CRON	3	0329.5	0334	8.5	8.0	3.0		
	2695 CRON	45	0438.5	0503	39.5	13.0	4.0		
	8800 MANI	4	0537.5	0538.2	4.7	52.0	16.0		
	2695 MANI	4	0537	0538.3	5.6	26.8	4.4		
	8800 MANI	47	0829.7	0833.5	21.7	2500.0	880.0		
	2695 CRON	47	0829.5	0834	34	687.0	153.0		
	2695 MANI	47	0830.8	0833.4	20.6	1100.0	400.0		
	2695 CANR	47	0831.5	0834.5	60.5	1169.0	219.0		
	8800 MANI	29	0851.4	0851.4	43.8	44.0	17.6		
	2695 MANI	29	0851.4	0851.4	43.8	12.0	5.5		
	2800 OTTA	22	1100 E	1115	170 D	7.2			
	8800 SGMR	1	1220.2	1220.4	2	7.4	1.7		
	2800 OTTA	20	1255	1315	55	4.6	2.6		
	2800 OTTA	21	1413	1515	145	2.4	1.2		
	8800 SGMR	3	1552.6	1552.8	.4	14.8	4.0		
	2695 SGMR	1	1552.8	1552.9	1.6	3.2	1.0		
	2695 BOUL	8	1552.5	1553	1	10.0	4.0		
	2800 OTTA	1	1552.5	1552.9	1.5	10.6	2.5		
	2695 CANR	8	1554	1554.5	1	8.0	3.0		
	2800 OTTA	22	1715		65	1.6	1.0		
	2800 OTTA	20	1825	1922	110	3.4	1.7		
	2800 OTTA	24	2040	----	25	2.0			
4	2695 PENT	26	0000	----	40	3.4			
	2695 CRON	3	0242	0248.5	12.5	7.0	2.0		
	8800 MANI	3	0622.8	0623.2	1.8	22.9	6.2		
	2800 OTTA	24	1240		55	4.1			
	2800 OTTA	20	1420	1432	35	2.4	1.2		
	2800 OTTA	21	1455	1540	255	12.8	6.8		
	2800 OTTA	4	1501.8	1505	8	12.8	6.0		
	2695 CANR	45	1504.5	1507	7	14.0	4.0		
	2695 BOUL	3	1935	1936	2	4.0	2.0		
	2800 OTTA	1	1935	1935.5	2	3.2	1.6		
	2800 OTTA	26	2000		35	5.2			
	2800 OTTA	1	2031.8	2032	2	2.0	1.0		
	2800 OTTA	20	2100	2101	10	1.4	0.7		
	2800 OTTA	1	2222.5	2224	4.5	1.6	0.8		
	2695 PENT	20	2240	2323	80	3.4	1.7		
5	8800 MANI	4	0452.3	0452.6	9.4	33.3	13.3		
	8800 MANI	40	0928.7	0935.4U		71.0U	--.-		
	2695 MANI	40	0928.8	0952.4U		24.4U	--.-		
	2695 CANR	45	0930	0933	11	24.0	9.0		
	8800 SGMR	44	1107.9	1109.9	5.9	11.1	2.5		
	8800 SGMR	45		1112.6		9.8			
	2800 OTTA	20	1110	1113	25	4.0	2.0		
	2800 OTTA	26	1140		50	5.4			
	2800 OTTA	24	1340		20	2.0			
	2800 OTTA	20	1430	1508	90	1.6	0.8		
	2800 OTTA	20	1620	1621	14	1.4	0.7		
	2695 SGMR	21	1646.5	1752.4	148.1	34.3	13.8		
	2800 OTTA	1	1647.5	1648	2.5	1.0	0.5		
	8800 SGMR	23	1653.9	1800	138	69.3	26.6		
	2800 OTTA	21	1655	2010	630	14.6			
	2800 OTTA	21	1705	1755	130	36.0	18.0		
	2695 SGMR	46	1712.7	1716.2	21.3	345.0	138.0		
	2695 SGMR	46		1717.9		275.0			
	2695 BOUL	45	1712.5	1718	120	284.0	44.0		
	2800 OTTA	4	1712.7	1717	11.3	355.0	110.0		
	8800 SGMR	47	1713.5	1716.2	20.8	497.0	224.0		
	8800 SGMR	47		1717.9		560.0			
	2695 CANR	45	1714	1718	17	318.0	108.0		

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MAY 1973	FREQUENCY STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} MEAN	INT	REMARKS
	2800 OTTA	29	1724		14	16.6	8.0		
	2800 OTTA	20	1842	1845	13	4.0	1.8		
6	2695 CRON	45	0902.5	0905	13	12.0	4.0		
	8800 MANI	2	0903.4	0905.9	9.5	9.2	2.3		
	2695 MANI	4	0903.4	0905.8	5.4	15.2	3.5		
	2695 CANR	3	1020	1021	1.5	2.0	1.0		
	2695 CANR	3	1037.5	1038.5	2.5	3.0	1.0		
	2800 OTTA	21	1055	1140	105	4.2	2.1		
	2695 CANR	3	1135	1138	8.5	3.0	1.0		
	2800 OTTA	1	1154.5	1156	2.5	1.6	0.8		
	2695 CANR	3	1156	1157	2	3.0	1.0		
	2695 CANR	3	1210	1214.5	10	6.0	2.0		
	2800 OTTA	21	1210	1215	20	2.0	1.0		
	8800 SGMR	20	1211.3	1213	17.2	13.5	6.0		
	2800 OTTA	1	1212.5	1213	3	4.4	1.5		
	2800 OTTA	24	1300		30	3.0			
	8800 SGMR	2	1456.9	1457.6	8	8.6	2.0		
	2695 SGMR	1	1457	1457.7	8.2	4.8	2.0		
	2800 OTTA	1	1457	1457.5	2	6.8	2.4		
	2800 OTTA	21	1630	1915	310	2.4	1.2		
	2800 OTTA	20	1735	1737	10	1.2	0.6		
	2695 CANR	3	1736.5	1737.5	2.5	3.0	1.0		
	2800 OTTA	21	1800	1808	30	2.6	1.3		
	2695 CANR	3	1808	1809.5	3	3.0	1.0		
	2800 OTTA	1	1821.5	1822	2	1.8	0.9		
	2695 BOUL	45	1950	1955.5	15.5	8.0	3.0		
	2800 OTTA	20	1950	1956	90	7.0	2.4		
	2695 PENT	20	2230	2440	200 D	4.6			
7	2695 MANI	2	0635 U	0637.4U	5.3U	9.1U	2.3U		RFI
	2695 CRON	8	0635	0636	2.5	12.0	4.0		
	8800 MANI	3	0637	0637.4	2.5	22.9	4.6		
	2695 CRON	3	0836	0837	1.5	6.0	2.0		
	2695 SGMR	1	1030.8	1031.5	5	1.6	.8		
	8800 SGMR	1	1328.5	1328.8	2.2	9.5	5.0		
	2695 SGMR	1	1328.5	1328.9	4	3.2	1.5		
	2695 BOUL	3	1328.5	1329	1.5	4.0	1.0		
	2800 OTTA	1	1328.5	1329	4	3.6	1.2		
	2800 OTTA	1	1513	1513.5	1	1.0	0.5		
	2800 OTTA	20	1755	1800	25	1.4	0.7		
	2800 OTTA	21	2000	2335	280 D	23.0			
	2695 SGMR	1	2002.1	2006.8	7.9U	3.8	.4U		
	2800 OTTA	20	2048	2125	75	8.2	4.6		
8	2695 CANR	3	0824.5	0827	3	3.0	1.0		
9	2695 MANI	2	0435.4	0437.1	2.6	5.5	2.2		
10	2800 OTTA	1	0025	0025.5	4	.8	0.4		
	2800 OTTA	20	1538	1545	25	1.6	0.8		
	2800 OTTA	26	1630		135	3.2			
	2800 OTTA	20	1630	1715	135	4.4	2.2		
	2695 BOUL	8	1936.5	1937	1.5	15.0	6.0		
12	2800 OTTA	20	1200		190	1.2	0.8		
13	2800 OTTA	21	2010	2510	335 D	11.0			
	2800 OTTA	1	2252.2	2252.9	3	1.6	1.0		
	2695 BOUL	3	2253	2253.5	2	3.0	1.0		
14	2800 OTTA	1	1251.5	1252	2	2.4	1.2		
	2695 CANR	3	1252	1253	2.5	4.0	1.0		
	2800 OTTA	22	1420	1458	130	8.2	2.8		
	2695 SGMR	20	1429.8	1438.8	63.6	7.2	3.6		
	2695 CANR	45	1431.5	1439	33.5	6.0	2.0		
	2695 BOUL	3	1437.5	1439	3	3.0	1.0		
	8800 SGMR	3	1551.9	1552.1	.9	21.5	8.6		
	2800 OTTA	20	1700	1704	13	1.2	0.6		
	2800 OTTA	21	1840	1850	30	1.6	0.8		
	2800 OTTA	1	1856	1856.5	3	1.4	0.7		
15	2800 OTTA	20	1135	1142	20	2.4	1.2		
	2800 OTTA	20	1800	1807	25	1.2	0.6		
	2800 OTTA	20	1910	1920	30	1.6	0.8		
16	8800 MANI	4	0453	0455.2	6	11.0	4.4		
	2695 MANI	4	0453	0456	10.6	16.3	5.1		
	2695 CRON	45	0453	0500	12	16.0	4.0		
17	2695 CRON	8	0702.5	0704	2.5	12.0	4.0		
	2695 MANI	3	0703.4	0704.4	9.8	10.4	3.1		
	2695 CANR	45	0703.5	0705	2	13.0	4.0		
	2695 CANR	8	1046	1046.5	1	4.0	1.0		
	2800 OTTA	1	1046	1046.1	2	3.4	1.2		
	2800 OTTA	1	1208.2	1208.5	1	1.6	0.6		
	8800 SGMR	4	1343.4	1344.5	3.7	23.3	5.8		
	2695 SGMR	2	1343.6	1344.5	2.6	3.8	1.0		
	2800 OTTA	21	1343	1400	115	5.4	2.0		
	2800 OTTA	2	1343.5	1344.5	2	3.4	1.7		

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MAY 1973	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} MEAN	INT	REMARKS
	2695	CANR	3	1344	1345	1.5	3.0	1.0		
	2695	BOUL	3	1344	1345	2	4.0	1.0		
	8800	SGMR	22	1354.5	1356.7	12.6	11.4	2.9		
	2695	SGMR	46	1354.2	1355.2	12.8	19.7	14.4		
	2695	SGMR	46		1356.6		57.6			
	2695	CANR	45	1354	1357	13	53.0	13.0		
	2800	OTTA	4	1354	1355	4.5	18.6	4.8		
	2695	BOUL	45	1355	1357	12.5	56.0	9.0		
	2800	OTTA	20	1548	1633	70	1.8	0.8		
	2695	BOUL	3	1632.5	1633	2.5	3.0	1.0		
	2695	SGMR	1	1823.8	1826.3	7.4	2.5	1.2		
	8800	SGMR	4	1825	1825.2	.9	11.4	2.0		
	8800	SGMR	47	1907.3	1908.8	25.3	835.0	334.0		
	8800	SGMR	47		1912.1		270.0			
	2695	SGMR	46	1907.5	1909	36.4	52.6	26.6		
	2695	SGMR	46		1912.4		64.0			
	2695	BOUL	45	1907.5	1909.5	12.5	58.0	15.0		
	2800	OTTA	46	1907	1909	13	55.0	19.0		
	2800	OTTA		1907	1909	3	55.0			
	2800	OTTA		1910	1912.2	10	54.6			
	2695	CANR	45	1908	1909.5	7.5	50.0	14.0		
	2800	OTTA	24	2230		25	1.2			
	8800	SGMR	1	2257.2	2258.2	1.9	8.8	4.4		
	2695	SGMR	1	2257.7	2258	1.8	5.1	2.6		
	8800	MANI	1	2257.6	2257.9	1.2	5.3	1.8		
	2695	MANI	1	2257.6	2258	1.7	3.2	1.1		
	2800	OTTA	1	2257	2258	2.5	4.4	1.5		
	2695	BOUL	3	2258	2258.5	1.5	6.0	2.0		
18	2695	MANI	20	0345.4	0353.2	12	5.3	1.1		
	8800	MANI	1	0457.7	0458.2	3.7	7.6	1.9		
	2695	MANI	3	0457.6	0458.7	4.9	12.6	3.2		
	2695	CRON	3	0457.5	0458.5	1.5	8.0	3.0		
	2695	CRON	8	0625	0626.5	2	10.0	4.0		
	2695	MANI	3	0626.7	0627.6	4.1	12.6	4.2		
	2695	MANI	1	0759.9	0801	3.1	3.2	1.1		
	2695	CRON	3	0759.5	0800.5	2.5	6.0	2.0		
	2695	CANR	3	0800	0801.5	4.5	5.0	1.0		
	2800	OTTA	20	1255	1315	80	1.6	0.8		
	2800	OTTA	21	1525	1540	35	5.0	2.3		
	8800	SGMR	46	1527.2	1528.6	7.6	81.0	17.0		
	8800	SGMR	46		1530		105.2			
	2695	SGMR	46	1527.2	1530.1	8.8	22.1	6.0		
	2695	SGMR	46		1531.5		31.6			
	2695	CANR	45	1527	1532	27	34.0	10.0		
	2695	BOUL	45	1527.5	1532	25.5	33.0	8.0		
	2800	OTTA	46	1527	1531.6	9	33.0	11.2		
	8800	SGMR	30	1534.8	1534.8	18.2	6.6	3.0		
	2695	SGMR	30	1536	1536	21.2	2.3	1.0		
	2695	SGMR	4	1543.8	1548.1	7.3	32.6	6.0		
	2800	OTTA	45	1544	1545	2.2	4.6	1.6		
	8800	SGMR	3	1547.8	1548.2	3.4	20.9	5.0		
	2800	OTTA	3	1547.3	1548.1	3.5	30.0	7.5		
	8800	SGMR	4	2031.4	2031.7	2.1	25.2	10.1		
	2800	OTTA	21	2147	2200	30	5.0	2.3		
	2695	BOUL	45	2151.5	2156	13	60.0	25.0		
	2695	SGMR	46	2153.8	2155.8	11.2U	61.6	24.0U		
	2695	SGMR	46		2156.6		49.7			
	8800	MANI	46	2153.6	2157.2	12	330.0	83.0		
	2695	MANI	46	2153.5	2155.5	12.1	67.0	19.8		
	2800	OTTA	45	2153.9	2156	5.5	78.0	28.0		
	8800	SGMR	46	2155.1	2156	11.9U	272.0	140.0U		
	8800	SGMR	46		2156.5		370.0			
	2695	PENT	4	2200	2201	5	10.4	5.2		
	2800	OTTA	24	2305		160	8.4			
19	2800	OTTA	20	1155	1220	85	1.6	0.8		
	2800	OTTA	20	1333	1336	35	1.6	0.8		
	2800	OTTA	21	1555	1618	50	2.2	1.1		
	8800	SGMR	1	1557.6	1557.8	2.3	9.0	3.0		
	2695	BOUL	45	1600.5	1604	8.5	8.0	3.0		
	2695	SGMR	1	1602.5	1605.2	6.9	5.1	1.2		
	2695	CANR	45	1602.5	1604	5.5	7.0	2.0		
	2800	OTTA	2	1602.8	1603.6	6	5.0	2.5		
	2800	OTTA	21	2155		110	9.2	4.0		
	2800	OTTA	1	2230.8	2233.8	3	1.6	0.7		
	2695	BOUL	47	2233.5	2245.3	36	1909.0	311.0		
	2695	MANI	47	2238.5	2244.4	23	1640.0	194.0		
	8800	MANI	47	2241.5	2244.6	20.5	970.0	370.0		
	2695	SGMR	47	2242.6	2244.3	9.9	1420.0	210.0		
	2800	OTTA	47	2242.5	2244.5	12	1470.0	177.0		
	8800	SGMR	47	2243.2	2244.5	11.9	1000.0	180.0		
20	2695	MANI	4	0449.9	0450.8	3.4	60.0	10.6		
	2695	CRON	45	0449	0451	5.5	47.0	17.0		
	8800	MANI	4	0450	0450.3	6	165.0	26.8		
	2695	MANI	4	0525.8	0527.4	3.1	11.7	2.1		
	2695	CRON	45	0526.5	0528	3	9.0	3.0		
	2695	MANI	23	0536.1	0550.6	40.3	21.2	10.6		
	2695	CRON	45	0538.5	0557	30.5	92.0	2.3		

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

MAY 1973

MAY 1973	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} MEAN	INT	REMARKS
	8800	MANI	23	0539.6	0546.6	40.9	23.4	9.8		
	8800	MANI	4	0558.5	0559.3	3	101.0	29.3		
	2695	MANI	4	0558	0559	5	126.0	31.8		
	2695	CANR	3	0923.5	0924.5	3.5	3.0	1.0		
	2695	CANR	45	0946	0946.5	5	3.0	1.0		
	2800	OTTA	21	1130	1145	35	2.4	1.2		
	2695	CANR	3	1141.5	1142.5	2	2.0	1.0		
	2800	OTTA	1	1141	1142	3	2.4	1.2		
	8800	SGMR	4	1254.3	1256.4	13.4	30.7	12.2		
	2695	CANR	45	1254.5	1256.5	10	27.0	8.0		
	2800	OTTA	4	1254	1256.1	7	26.2	7.0		
	2800	OTTA	29	1301		20	1.6	0.8		
	2800	OTTA	21	1440	1449	28	2.2	1.1		
	2695	SGMR	1	1447.8	1450	5.9	3.8	1.9		
	8800	SGMR	1	1448.4	1450	8.5	4.8	2.4		
	2695	CANR	3	1449.5	1450.5	1.5	3.0	1.0		
	2695	BOUL	8	1449	1450.5	2.5	4.0	1.0		
	2800	OTTA	1	1449.8	1450	1	1.6	0.8		
	2695	CANR	8	1652.5	1654.5	5	10.0	3.0		
	2800	OTTA	1	1652	1654	4	9.2	2.3		
	2695	BOUL	8	1653.5	1654.5	2	9.0	3.0		
	2695	SGMR	1	1823.8	1825.4	9.4	8.6	1.9		
	2695	CANR	45	1823.5	1825.5	6	10.0	3.0		
	2800	OTTA	45	1823.5	1825.3	5	9.0	4.3		
	8800	SGMR	3	1824	1825.2	9.3	10.8	2.2		
	2695	BOUL	45	1824	1826	5.5	9.0	3.0		
	2800	OTTA	29	1828.5		12	1.8	0.9		
	2695	SGMR	1	1925.6	1926.4	3.9	8.4	2.2		
	2800	OTTA	1	1925.5	1926.9	2.5	7.6	3.6		
	2695	BOUL	3	1926	1926.5	2.5	7.0	2.0		
	2800	OTTA	29	1928		10	1.6	0.8		
	2800	OTTA	21	2010	2025	30	2.8	1.2		
	8800	SGMR	22	2016.3	2022.4	16.2	22.7	4.4		
	2695	SGMR	22	2016.2	2022.4	17.2	13.5	2.8		
	2800	OTTA	2	2016	2018	3	4.4	2.0		
	2695	BOUL	45	2017	2023	11.5	13.0	4.0		
	2800	OTTA	4	2020	2022.2	5	11.8	3.9		
	2800	OTTA	21	2052	2054	45	2.6	1.3		
	2695	BOUL	21	2053	2054	10	7.0	1.0		
	2800	OTTA	1	2053.2	2053.8	1	2.6	1.3		
	8800	MANI	4	2144.5U	2147.2	7.5U	186.0U	75.0U		SUNRISE
	2695	MANI	4	2144.5U	2147.2	7.5U	90.0U	18.6U		SUNRISE
	2695	BOUL	8	2145.5	2148	6	73.0	25.0		
	2695	SGMR	3	2146.9	2147.3	1.5	57.5	14.4		
	2800	OTTA	3	2146	2147	6	88.0	12.7		
	8800	SGMR	3	2147.1	2147.4	1.8	82.2	20.5		
	2800	OTTA	31	2152	2205	50	-2.2	-1.1		
	2695	BOUL	45	2155.5	2156.5	6.5	26.0	9.0		
21	8800	MANI	3	0359.6	0401.4	6.1	12.4	4.1		
	2695	MANI	1	0359.4	0401.6	4.6	9.9	2.2		
	2800	OTTA	21	1210	1213	25	1.0	0.5		
	2695	SGMR	2	1211.7	1212.2	2.3	8.0	1.6		
	2800	OTTA	1	1211.7	1212.1	1	6.8	3.4		
	8800	SGMR	4	1212	1212.2	6.8	13.8	2.7		
	2695	CANR	8	1212.5	1213	1	6.0	2.0		
	2695	CANR	8	1434.5	1435.5	1.5	4.0	1.0		
	2695	BOUL	8	1434.5	1435	1	4.0	1.0		
	2800	OTTA	1	1434	1435	1.5	2.4	1.2		
	2800	OTTA	20	1450	1600	135	2.6	1.3		
	2800	OTTA	21	1743	1749	20	3.4	1.7		
	2800	OTTA	1	1743	1745	3	3.2	1.6		
	2695	BOUL	3	1744.5	1745.5	2	4.0	1.0		
	2800	OTTA	2	2053.2	2054.2	3	2.0	0.8		
	2695	PENT	2	2337	2338.5	5	1.8	0.9		
22	2695	CANR	8	1050.5	1052.5	4.5	27.0	10.0		
	2800	OTTA	21	1050	1053.5	15	2.6	1.3		
	2695	SGMR	4	1051.6	1052.2	2.7	18.0	3.0		
	2800	OTTA	4	1051.5	1052.2	1.5	13.6	3.4		
	2695	SGMR	20	1414.5	1420.6	18.3	5.5	2.0		
	2695	SGMR	20	1537.7	1543.8	16.3	5.5	2.0		
	2695	SGMR	20	1607.4	1614.3	17.1	5.0	2.0		
	2800	OTTA	21	1705	1755	165	7.4	3.7		
	2695	SGMR	22	1710 U	1724 U	78.3U	7.5	3.0U		
	2800	OTTA	21	1715	1718	30	5.2	2.6		
	2800	OTTA	8	1731.2	1731.5	.5	4.2			
	2695	SGMR	46	1924.4	1924.9	1.6	21.8	5.4		
	2695	SGMR	46		1925.3		10.5			
	2695	BOUL	8	1924	1925.5	3	27.0	10.0		
	2800	OTTA	4	1924.1	1925	1.5	13.6	6.8		
	2800	OTTA	20	2306	2320	55	2.0	1.0		
23	2800	OTTA	21	1825	1850	50	1.6	0.8		
	2800	OTTA	1	1831.9	1832.3	1.5	5.6	1.9		
	2695	CANR	8	1832.5	1833	1	6.0	2.0		
	2695	BOUL	8	1832.5	1833	1	6.0	2.0		
	2800	OTTA	1	1926.5	1927.5	2	1.8	0.9		
	2695	BOUL	3	1927	1927.5	2	3.0	1.0		
	2695	CRON	45	2351	2352.5	6.5	8.0	2.0		

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

MAY 1973

MAY 1973	FREQUENCY STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} MEAN	INT	REMARKS
	2695 CRON		2351	2354					
	2695 PENT	2	2351.5	2354	4.5	9.2	6.1		
	2695 BOUL	45	2353	2355	3	7.0	3.0		
	2695 PENT	29	2356		45	5.0	1.7		
24	2695 CRON	3	0657	0659.5	10	13.0	4.0		
	8800 MANI	4	0659.2	0700.4	14.9	17.5	5.3		
	2695 MANI	4	0659.2	0659.9	4.3	10.2	2.5		
	2800 OTTA	24	1205		5	1.6			
	2695 CANR	8	1735.5	1736	1	6.0	2.0		
	2800 OTTA	21	1813	1835	107	6.4	3.3		
	2695 CANR	3	1815.5	1817.5	5.5	11.0	3.0		
	2695 SGMR	3	1816.5	1818.1	6.9	13.4	6.7		
	2800 OTTA	2	1817	1818	7	8.4	4.0		
	2695 BOUL	45	1818	1819	5	7.0	2.0		
	2695 PENT	24	2210		120	3.6			
25	2800 OTTA	20	1104	1106	15	1.8	0.9		
	2800 OTTA	24	1147		8	1.4			
	2800 OTTA	1	1459.5	1500	1.5	1.4	0.7		
	2800 OTTA	20	1620	1635	27	1.4	0.7		
	2800 OTTA	21	1740		45	1.2	0.6		
	2800 OTTA	1	1812	1814	8	1.4	0.7		
26	2800 OTTA	1	1308	1310	7	1.0	0.5		
27	2800 OTTA	21	1202	1203.5	11	3.0	1.5		
	2800 OTTA	1	1204.5	1204.9	1	2.2	1.1		
	2800 OTTA	20	1315	1330	55	1.6	0.8		
	2800 OTTA	21	1415	1520	210	1.6	0.8		
	2695 SGMR	2	1606.2	1606.6	2.1	5.3	2.0		
	2800 OTTA	40	1606	1606.5	2	9.7			
	2695 PENT	1	2304.5	2306.5	4	3.8	1.9		
	2695 BOUL	3	2305	2306.5	5	5.0	2.0		
28	8800 MANI	8	0500.5	0501	.9	109.0	21.8		
	2800 OTTA	24	1240		5	2.8			
	2800 OTTA	26	1410		20	2.1			
	2800 OTTA	23	1735	1742	25	3.2	1.8		
	2695 BOUL	3	1737.5	1741	16	5.0	1.0		
	2800 OTTA	1	1740.6	1741	1	1.6	0.8		
	2800 OTTA	32	1905	1915	35	-2.0	-1.0		
29	2800 OTTA	24	1500		70	2.6			
	2800 OTTA	24	2020		50	1.8			

Observatories:

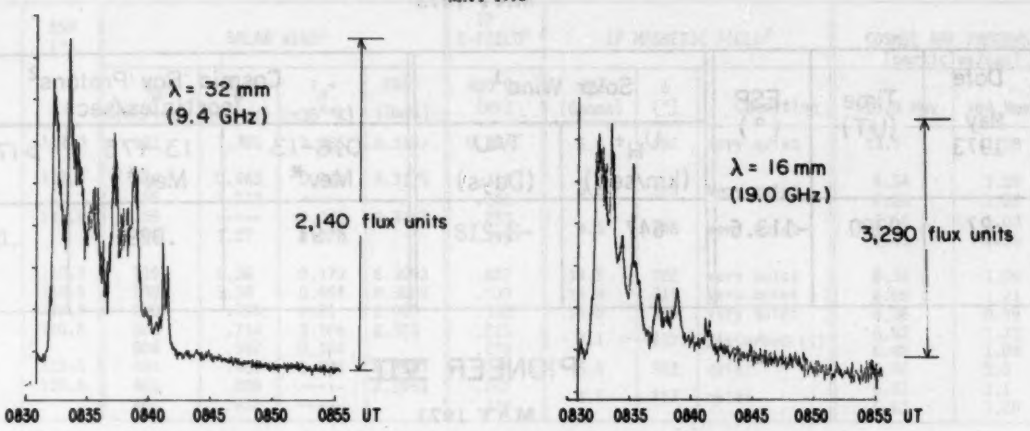
BOUL = Boulder CRON = Carnarvon OTTA = Ottawa ARD PENT = Penticton SGMR = Sagamore Hill
CANR = Canary Islands MANI = Manila

Explanation of Type Code:

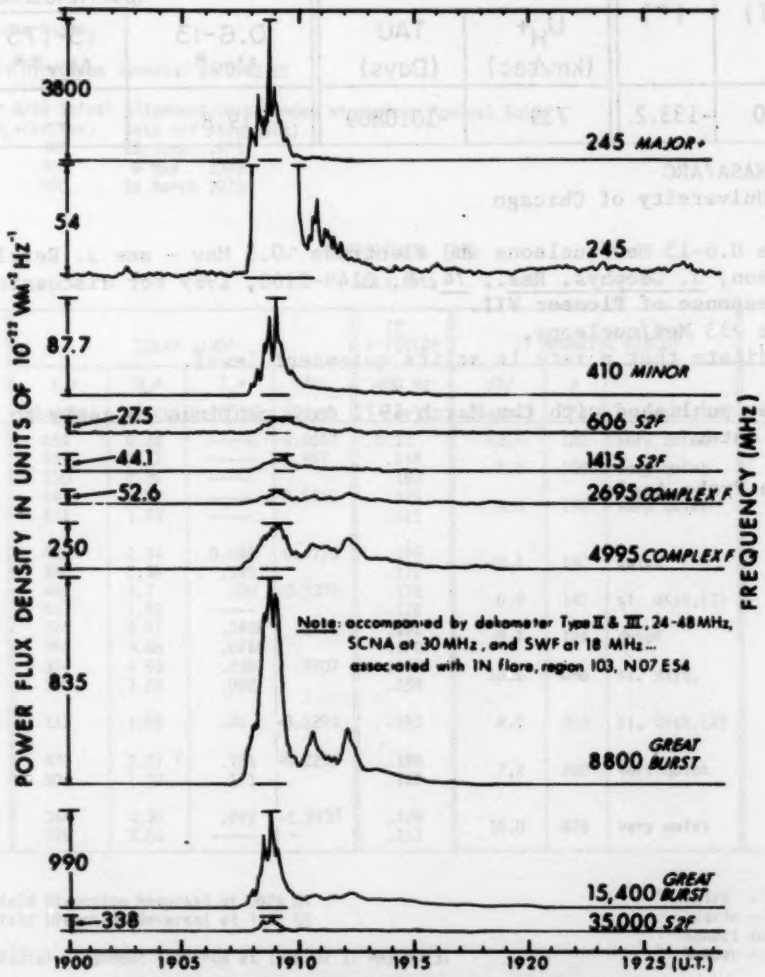
1 Simple 1 6 Minor 22 Simple 3F 27 Rise and Fall 32 Absorption 44 Noise storm in Progress
2 Simple 1F 7 Minor + 23 Simple 3AF 28 Precursor 40 Fluctuation 45 Complex
3 Simple 2 8 Spike 24 Rise 29 Post Burst Increase 41 Group of Bursts 46 Complex F
4 Simple 2F 20 Simple 3 25 Rise A 30 Post Burst Increase A 42 Series of Bursts 47 Great Burst
5 Simple 21 Simple 3A 26 Fall 31 Post Burst Decrease 43 Onset of Noise Storm 48 Major
49 Major +

SELECTED SOLAR NOISE BURSTS

MAY 1973



RADIO BURST OBSERVED ON 3 MAY, 1973 AT SLOUGH, U.K.



RADIO BURST OBSERVED ON 17 MAY, 1973
SAGAMORE HILL RADIO OBSERVATORY, HAMILTON, MASS.

PIONEER VI

MAY 1973

Date May 1973	Time (UT)	ESP (°)	Solar Wind[1]		Cosmic Ray Protons[2] (particles/sec)		
			U_H^+ (km/sec)	TAU (Days)	0.6-13 Mev*	13-175 Mev**	>175 Mev
27	0300	-113.6	647	-8.218	2.91	.029	.065

PIONEER VII

MAY 1973

Date May 1973	Time (UT)	ESP (°)	Solar Wind[1]		Cosmic Ray Protons[2] (particles/sec)		
			U_H^+ (km/sec)	TAU (Days)	0.6-13 Mev*	13-175 Mev**	>175 Mev
26	0300	-133.2	739	-10.0869	19.8	--	--

[1] Wolfe - NASA/ARC
[2] Simpson - University of Chicago

* Includes He 0.6-13 Mev/nucleons and electrons ∿0.5 Mev - see J. Retzler and J. A. Simpson, J. Geophys. Res., 74, 9, 2149-2160, 1969 for discussion of the electron response of Pioneer VII.
** Includes He >13 Mev/nucleons.
Q used to indicate that a rate is at its quiescent level.

Note: The notes published with the March 1972 data continue to apply to the current data.

ESP = Earth-Sun Probe Angle.

PIONEER VIII

MAY 1973

DATE May 1973	TIME (UT)	ESP (°)	SOLAR WIND[1] U_H^+ (km/sec)	N_H^+ (H^+/cc)	T_H^+ (x10⁶°K)	TAU (Days)	IP E-FIELD[2] 400 Hz (mv)	IP MAGNETIC FIELD[3] /B/ (Gamma)	φ (°)	Condition	COSMIC RAY PROTONS[4] (particles/sec) >13.9 Mev	>64 Mev
7	2100	111.3	811	1.301	0.586	8.3567	0.274	6.6	182	very quiet	13.5	1.28
22	0300	110.9	482	0.463	0.100	8.3175	.312	5.8	323	very quiet	6.54	1.09
	0700		455	1.012	-----		.266				6.28	1.06
23	0300	110.9	355	-----	0.070	8.3113	.253	4.5	348	very quiet	6.66	1.03
	0700		408	1.27	0.078		.295				6.61	1.25
25	0500	110.9	519	2.36	0.179	8.3093	.827	14.9	320	very quiet	6.35	1.09
26	0600	110.9	530	3.36	0.464	8.3089	.639	14.8	315	very quiet	6.68	1.21
27	0600	110.9	600	.796	0.21	8.007	.300	13.6	315	very quiet	6.36	0.99
28	0230	110.8	608	.714	0.106	8.303	.225	7.1	312	disturbed (1)	6.52	1.23
	0630		608	.597	0.164		.270				6.49	1.04
29	0400	110.8	484	.453	0.086	8.2983	.274	5.5	342	quiet	6.46	1.0
30	0230	110.8	465	.809	-----	8.2951	.282	4.5	317	quiet	6.61	1.1
	0630		466	.837	-----		.229				6.61	1.26

[1] Wolfe - NASA/ARC
[2] Scarfe - TRW, Inc.
[3] Ness - NASA/Goddard & Mariani - Univ. of Roma
[4] Webber - Univ. of N.H.

ESP = Earth-Sun Probe Angle.

Note: (1) With 1 Field Direction Reversal at 0533 UT

Note: Possible Pioneer 8/10 Spiral Alignment Occurrences at various Nominal Solar Wind Velocities:

U_H^+(km/sec)	Date (of Alignment)
300	25 June 1973
400	9 May 1973
500	26 March 1973

PIONEER IX

MAY 1973

DATE May 1973	TIME (UT)	ESP (°)	SOLAR WIND[1] U_H^+ (km/sec)	N_H^+ (H^+/cc)	T_H^+ (x10⁶°K)	TAU (Days)	IP E-FIELD[2] 400 Hz (mv)	IP MAGNETIC FIELD[3] /B/ (Gamma)	φ (°)	Condition	COSMIC RAY PROTONS[4] (particles/sec) >13.9 Mev	>40 Mev
1	1600	-001.0	659	0.88	-----	0.5667	0.11	12.5	132	very quiet	18	--
2	1040	-001.7	599	3.17	-----	0.597	.218	7.1	156	very quiet	10	--
	1430		550	2.36	-----		.163				13	--
3	1330	-002.3	443	1.57	-----	0.8447	.129	9.3	175	very quiet	15	--
	1730		414	1.73	-----		.121				9	--
9	1000	-006.1	483	1.44	0.098	0.4176	.155	9.1	160	quiet	5.38	0.96
	1400		470	2.38	.199		.172				5.19	0.94
10	1000	-006.7	489	1.7	.109	0.3379	.178	6.9	142	sl. dist.(1)	5.17	0.87
	1400		517	1.93	-----		.178				5.09	1.08
11	1000	-007.4	374	3.77	.0416	.5771	.195	8.7	124	quiet	5.09	0.91
	1400		384	5.68	.0755		.178				5.21	0.78
12	1000	-008.0	374	5.93	.036	.5707	.163	10.5	056	sl. dist.	4.99	1.01
	1400		350	3.64	.062		.258				5.01	0.86
16	1200	-010.5	777	1.56	.42	-0.2291	.163	8.5	326	sl. dist.(2)	4.56	0.85
23	0900	-014.8	470	2.67	.186	-0.2276	.188	7.2	320	very quiet	4.84	0.89
	1300		509	1.32	.171		.148				4.75	0.71
30	0830	-018.8	344	4.30	.079	-0.2737	.179	10.0	076	very quiet	5.36	0.97
	1230		379	3.65	-----		.217				5.43	0.90

Notes: (1) With 1 Field Direction Reversal at 0929 UT
(2) With 1 Field Direction Reversal at 1130 UT

Note: Pioneer 9/11 Radial Alignment occurred at 1200 UT 11 May 1973.

[1] Wolfe - NASA/ARC
[2] Scarfe - TRW, Inc.
[3] Sonett and Colburn - NASA/ARC
[4] Webber - Univ. of N.H.

ESP = Earth-Sun Probe Angle.

APRIL 1973 DATA

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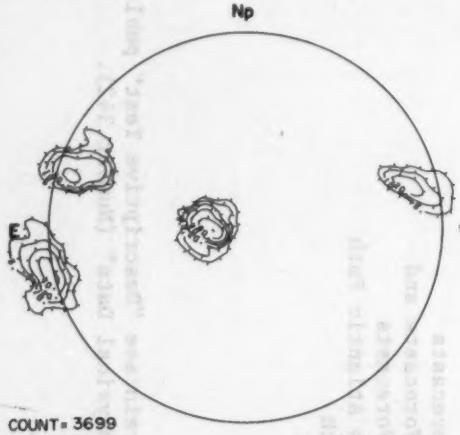
For explanations of the data contained herein see "Descriptive Text" published as supplement to February 1973 "Solar-Geophysical Data" (Number 342).

APRIL 1, 1973 (P = -26.21, B_o = -6.53, L_o = 95.77)

30 Apr 73

NASA GSFC
OSO-7

X-RAY



COUNT = 3699
ROLL = 32.9°
P-TH = -3.20

0950 UT

Intensities in Units of 10^{-6} ergs cm^{-2} sec^{-1}

PROSPECT HILL
AFCRL

8.6 mm

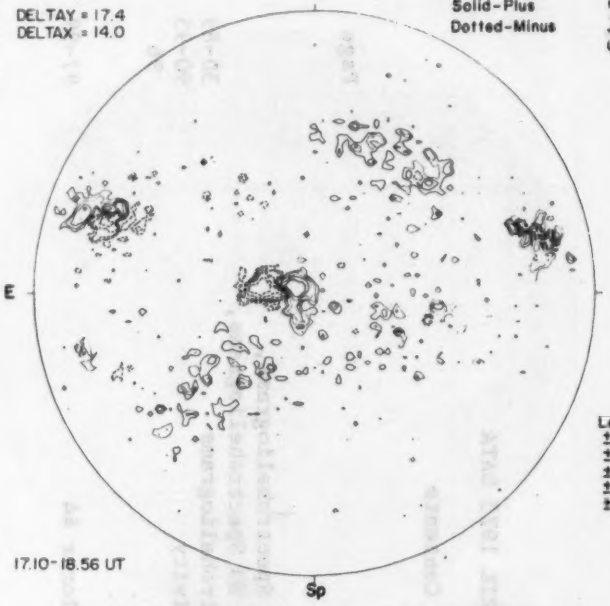
Note:
For several months beginning with December 1972 no 8.6 mm observations will be made at Prospect Hill. Repair and calibration of equipment are in progress.

Contours in Intervals of 200° K

MT. WILSON

DELTAY = 17.4
DELTAX = 14.0

MAGNETOGRAM
Solid-Plus
Dotted-Minus

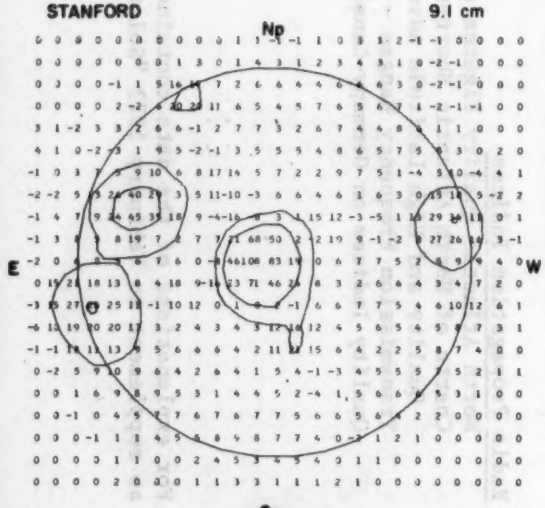


Levels
±5
±10
±20
±40
±80

17.10-18.56 UT

STANFORD

9.1 cm

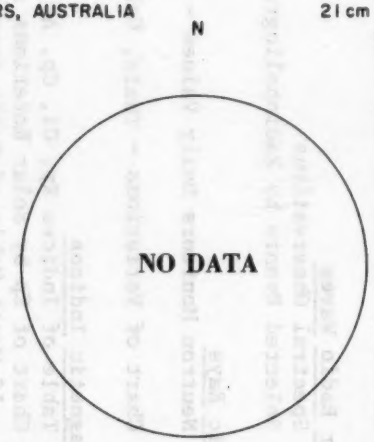


20-21 UT

Brightness Unit 5,000° K

FLEURS, AUSTRALIA

21 cm

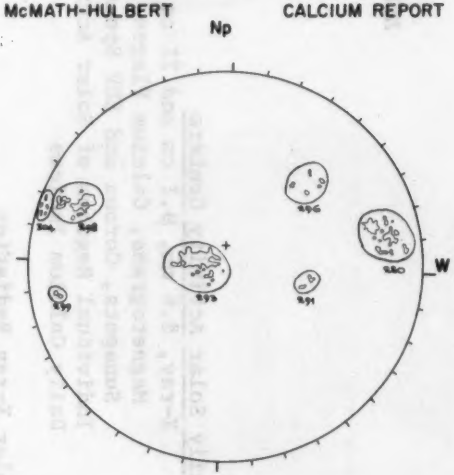


02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT

CALCIUM REPORT



FAIR	D
80 - 2800	- 3.0
93 - 2100	- 3.5
98 - 2200	- 3.5

1600 UT

RAMEY AFB

Np

Hα

BOULDER

Np

SUNSPOTS

NRL

TV SCAN

Np

WHITE-LIGHT

20-21 UT

02-03 UT Brightness Unit 1,700° K

1600 UT

RAMEY AFB
01

Np

Hα

E

W

1603 UT

Sp

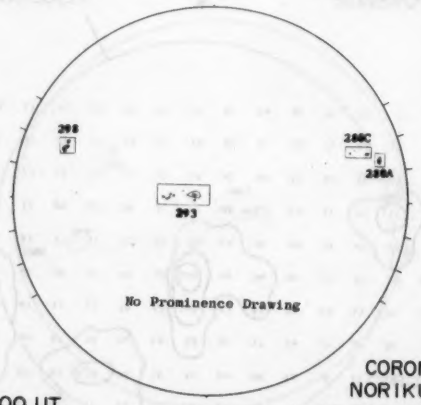
BOULDER

Np

SUNSPOTS

E

W



1500 UT

Sp

CORONA
NORIKURA
NO DATA W LIMB

NRL
OSO-7

TV SCAN DIRECTION

Np

WHITE-LIGHT
CORONA

SHADOW AREA CAUSED BY OCCULTER SUPPORT

E

W

TWO DIAMETRAL STREAKS, ALWAYS AT 90° TO SCAN DIRECTION

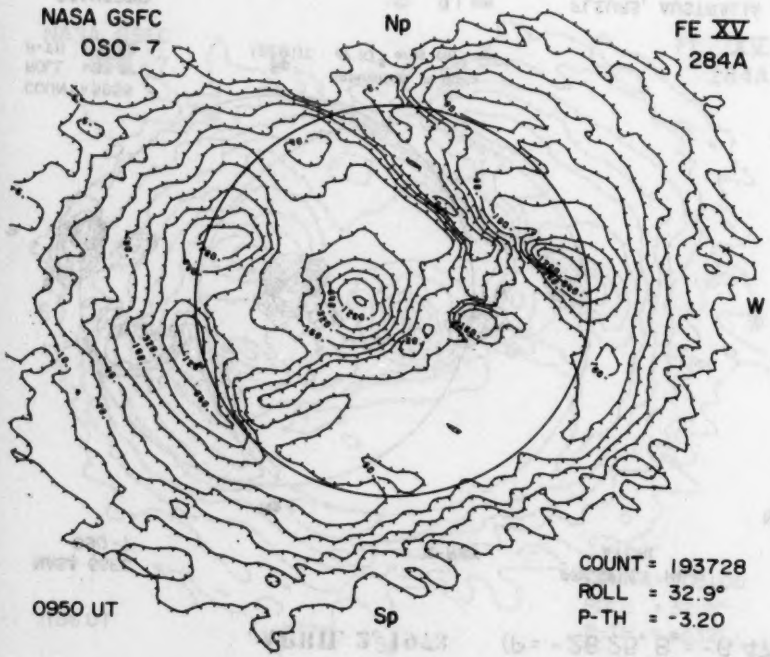
Sp

0806 UT

NASA GSFC
OSO-7

Np

FE XV
284A



W

COUNT = 193728
ROLL = 32.9°
P-TH = -3.20

0950 UT

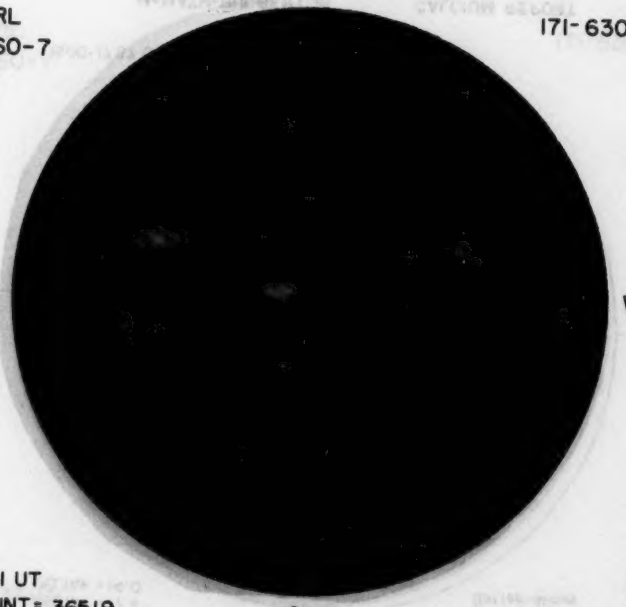
Sp

Np

NRL
OSO-7

171-630A

E



W

1011 UT
COUNT = 36519

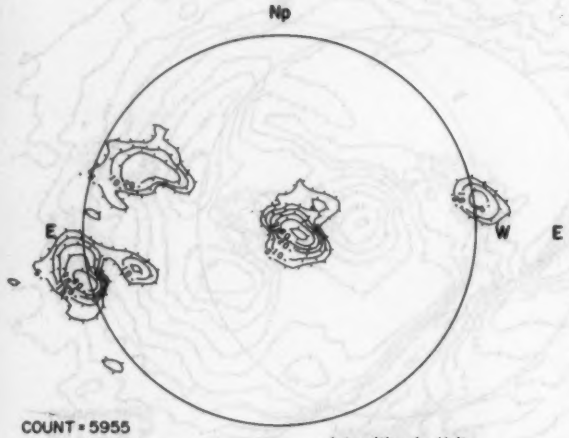
Sp

31
Apr 73

APRIL 2, 1973 (P = -26.25, B_o = -6.47, L_o = 82.58)

NASA GSFC
OSO-7

X-RAY



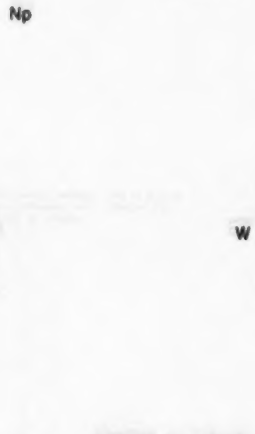
COUNT = 5955
ROLL = 32.9°
P-TH = -3.32

1229 UT

Intensities in Units of 10^{-6} ergs cm^{-2} sec^{-1}

PROSPECT HILL
AFCRL

8.6 mm

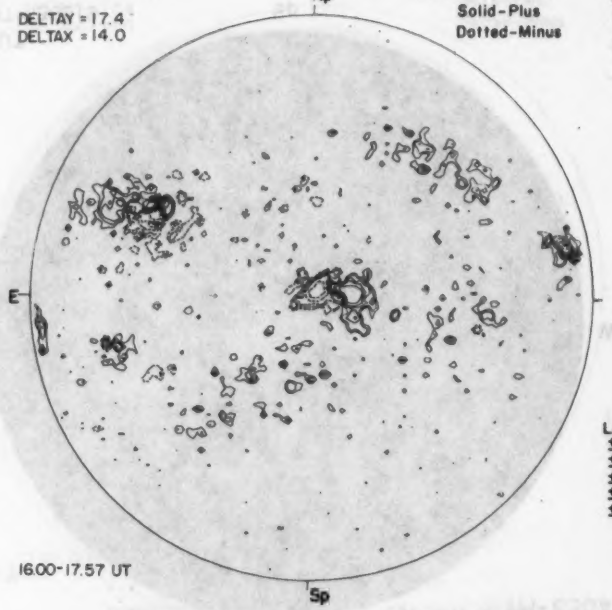


Contours in Intervals of 200° K

MT. WILSON

DELTAY = 17.4
DELTAX = 14.0

MAGNETOGRAM
Solid - Plus
Dotted - Minus

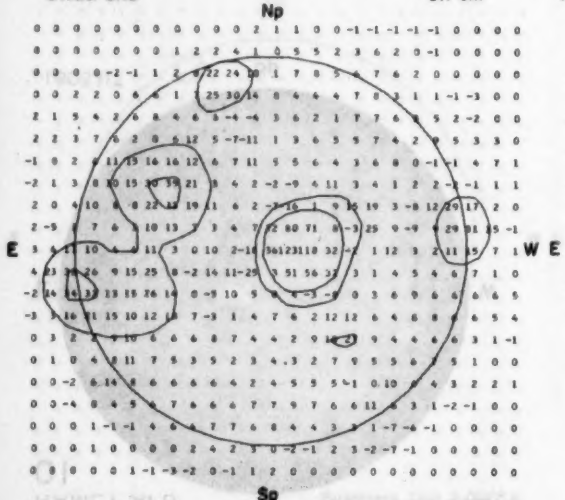


Levels
±5
±10
±20
±40
±80

16.00-17.57 UT

STANFORD

9.1 cm

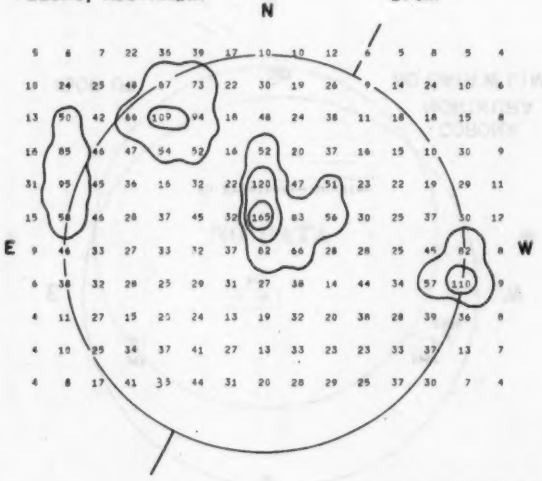


20-21 UT

Brightness Unit 5,000° K

FLEURS, AUSTRALIA

21 cm

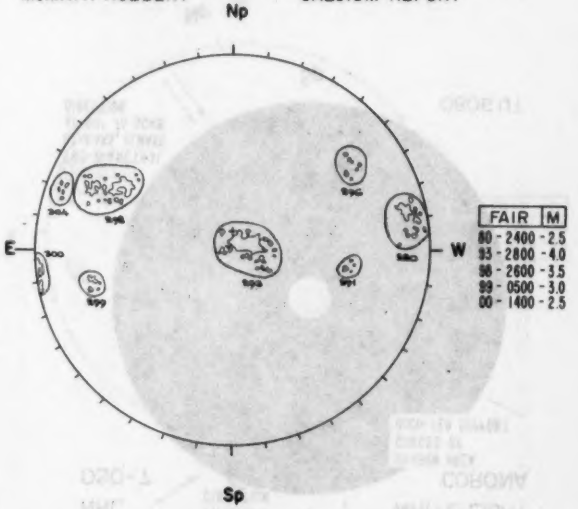


02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT

CALCIUM REPORT



1415 UT

20-21 UT

02-03 UT
Brightness Unit 1,700° K
Resolution 3 Minutes of Arc

1415 UT

BOULDER
02

Np

Hα

E

NO DATA

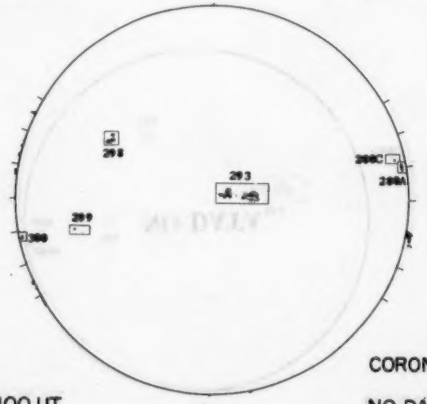
W

Sp

BOULDER

Np

SUNSPOTS



2100 UT

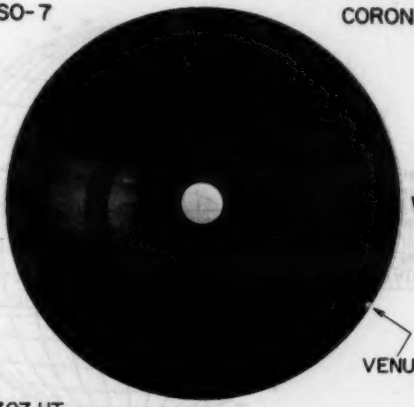
CORONA

NO DATA

NRL
OSO-7

Np

WHITE-LIGHT
CORONA

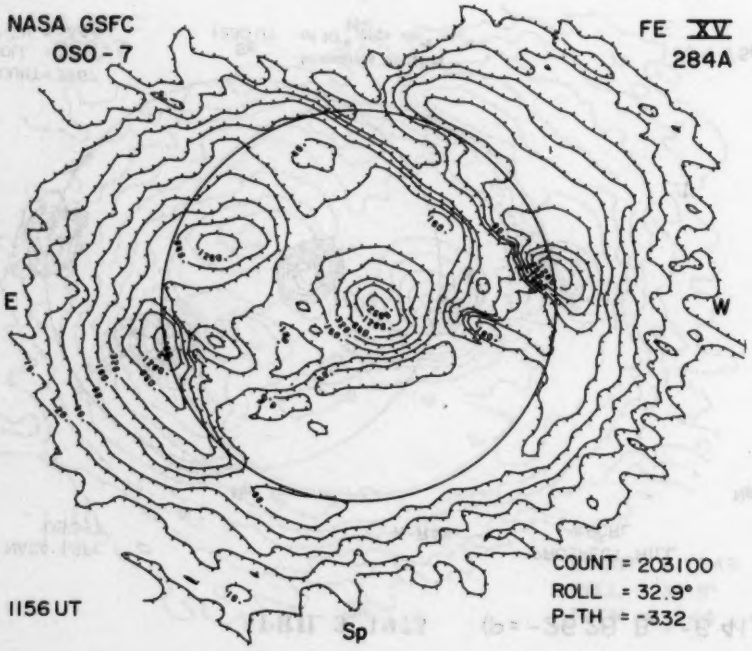


0707 UT

NASA GSFC
OSO-7

Np

FE XV
284A

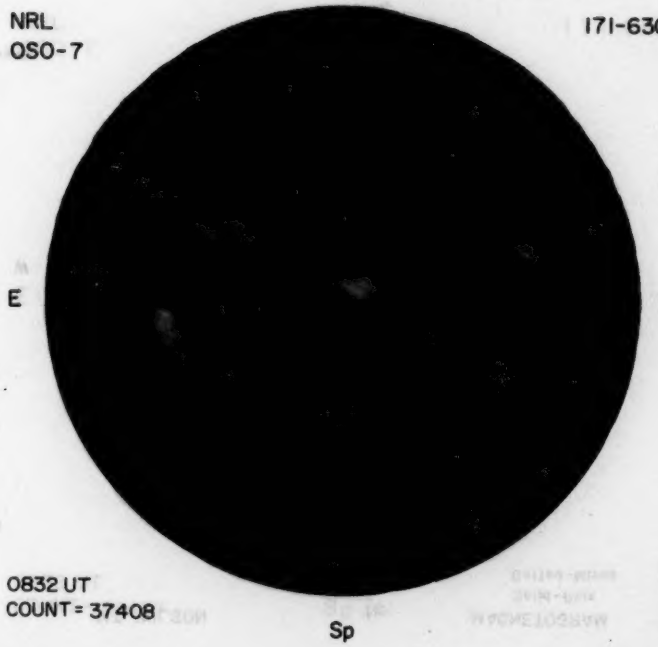


1156 UT

NRL
OSO-7

Np

171-630A

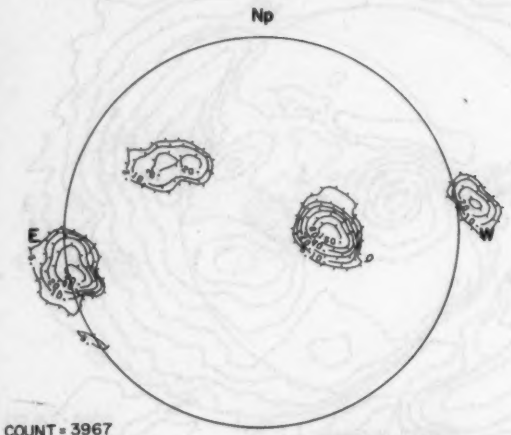


0832 UT
COUNT = 37408

APRIL 3, 1973 (P = -26.28, B_o = -6.41, L_o = 69.38)

NASA GSFC
OSO-7

X-RAY



COUNT = 3967
ROLL = 32.8°
P-TH = -3.4.4

1230 UT

Intensities in Units of 10^{-6} ergs cm^{-2} sec^{-1}

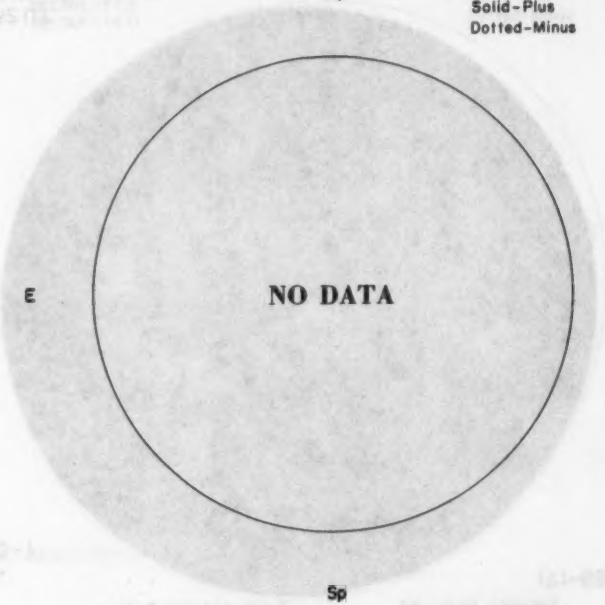
PROSPECT HILL
AFCRL

8.6 mm

Contours in Intervals of 200° K

MT. WILSON

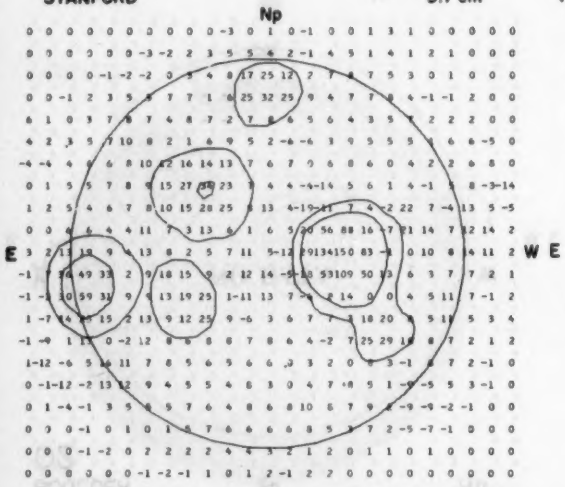
MAGNETOGRAM
Solid-Plus
Dotted-Minus



Levels
± 5
± 10
± 20
± 40
± 80

STANFORD

9.1 cm



20-21 UT

Brightness Unit 5,000° K

FLEURS, AUSTRALIA

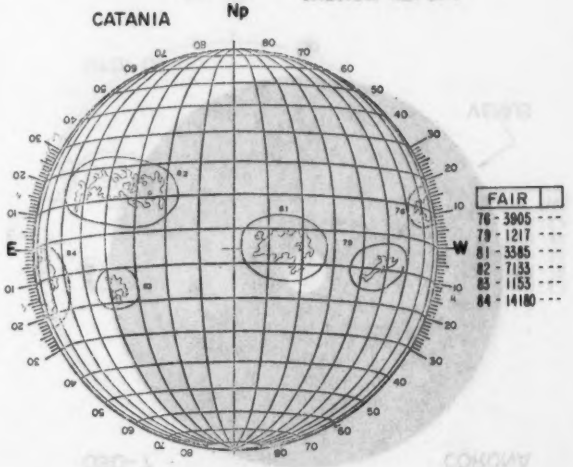
21 cm

02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

CALCIUM REPORT

CATANIA



0750 UT

BOULDER

Np

Hα

BOULDER

Np

SUNSPOTS

NRL

Sp
20-21 UT
Brightness Unit 5,000° K

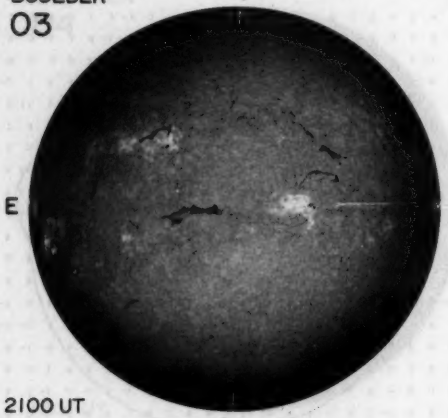
02-03 UT
Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

0750 UT

BOULDER
03

Np

Hα



E

W

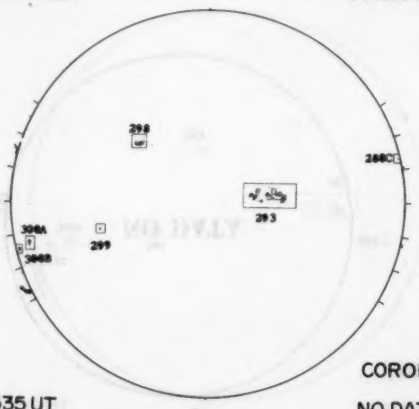
2100 UT

Sp

BOULDER

Np

SUNSPOTS



E

W

1535 UT

Sp

CORONA

NO DATA

NRL
OSO-7

WHITE-LIGHT
CORONA

E

W

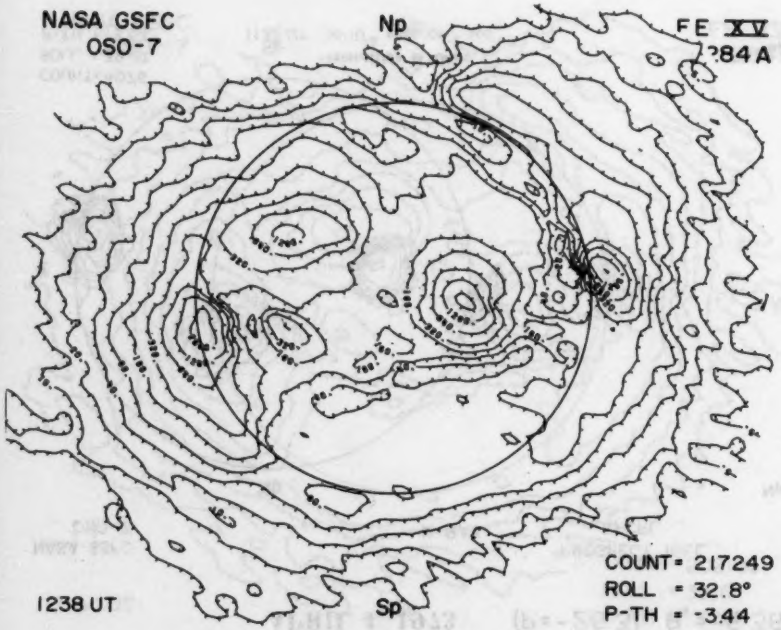
0609 UT

Sp

NASA GSFC
OSO-7

Np

FE XV
284 A



COUNT = 217249
ROLL = 32.8°
P-TH = -3.44

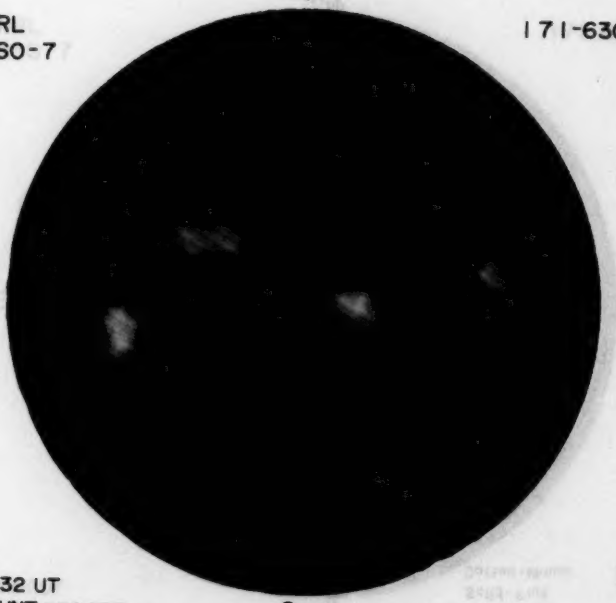
1238 UT

Sp

Np

NRL
OSO-7

171-630A



E

W

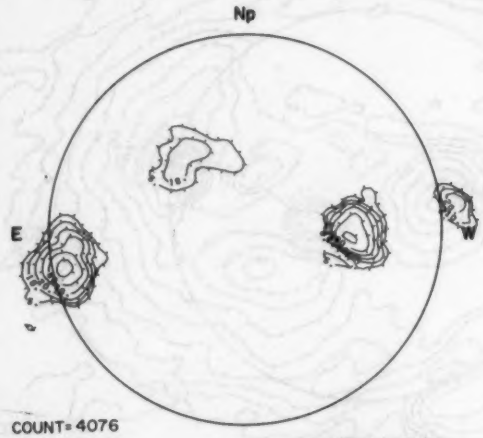
0932 UT
COUNT = 38477

Sp

APRIL 4, 1973 (P = -26.31, B_o = -6.36, L_o = 56.19)

NASA GSFC
OSO-7

X-RAY



COUNT = 4076
ROLL = 32.6°
P-TH = -3.54

1132 UT

Intensities in Units of 10^{-6} ergs cm^{-2} sec^{-1}

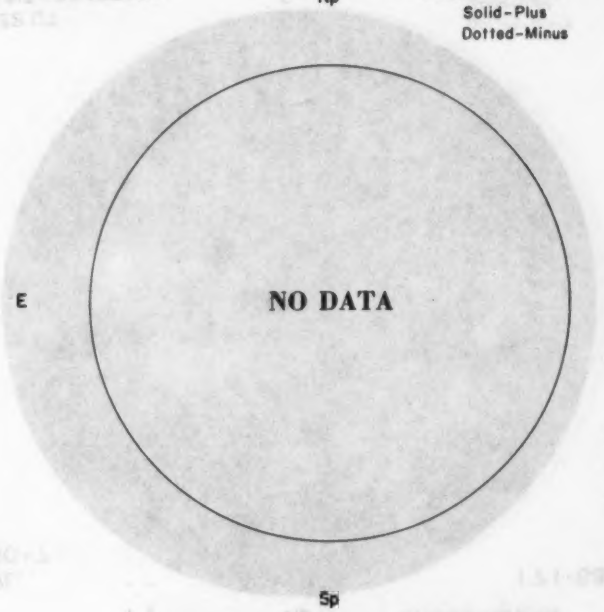
PROSPECT HILL
AFCRL

8.6 mm

Contours in Intervals of 200° K

MT. WILSON

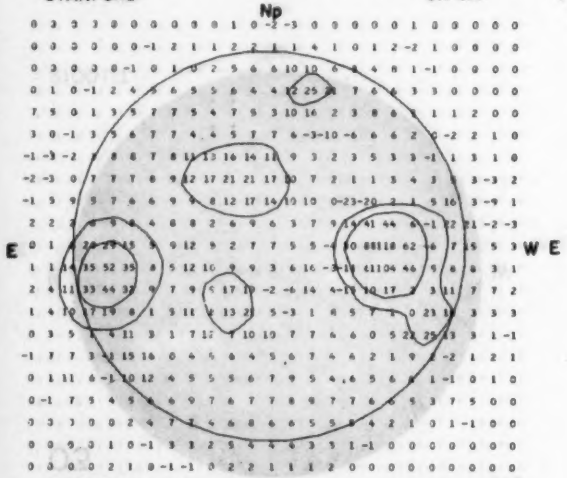
MAGNETOGRAM
Solid-Plus
Dotted-Minus



Levels
±5
±10
±20
±40
±80

STANFORD

9.1 cm



20-21 UT

Brightness Unit 5,000° K

FLEURS, AUSTRALIA

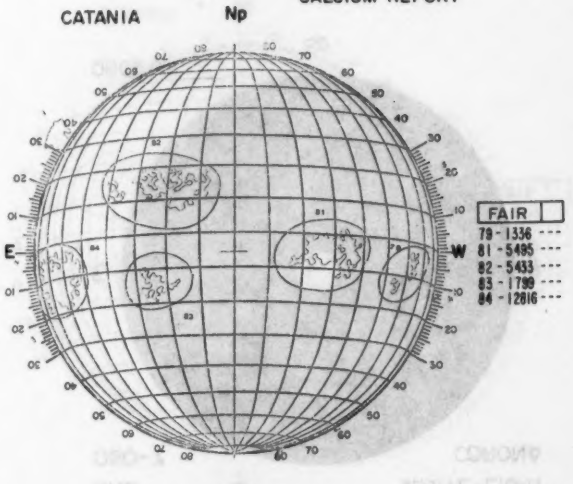
21 cm

02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

CATANIA

CALCIUM REPORT

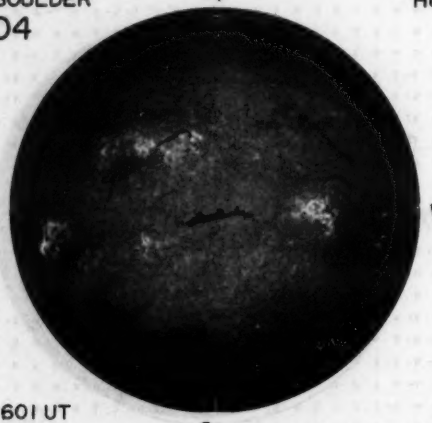


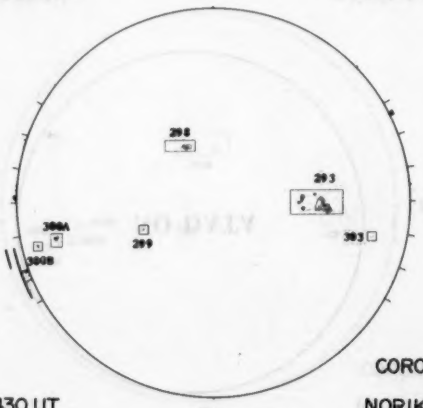
0830 UT

Sp
20-21 UT
Brightness Unit 5,000° K

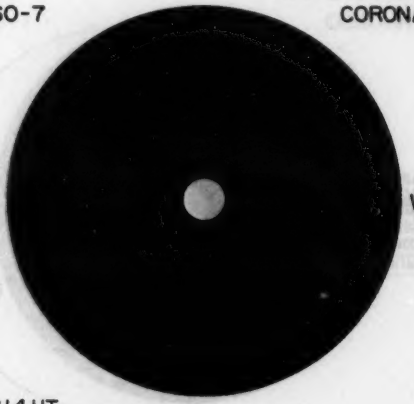
02-03 UT
Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

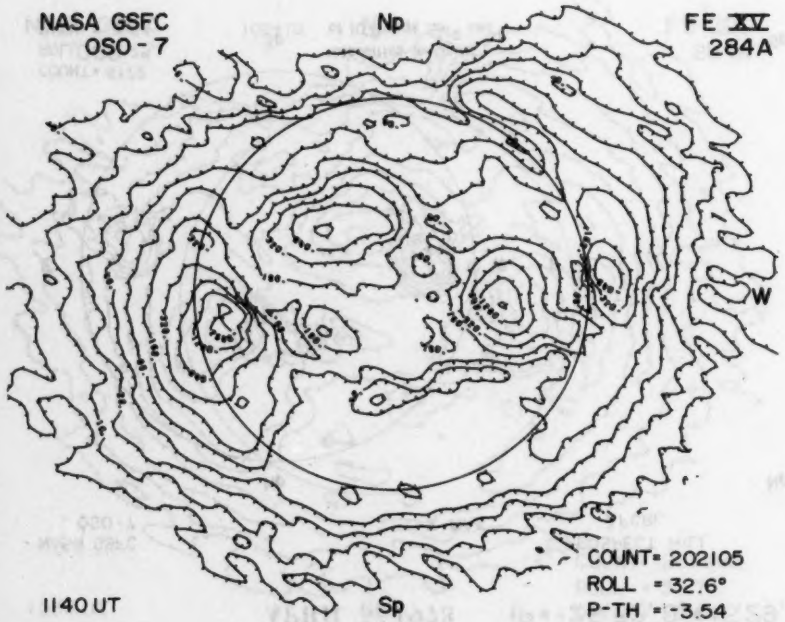
0830 UT

BOULDER
04
Np
Hα
E
W

1601 UT
Sp

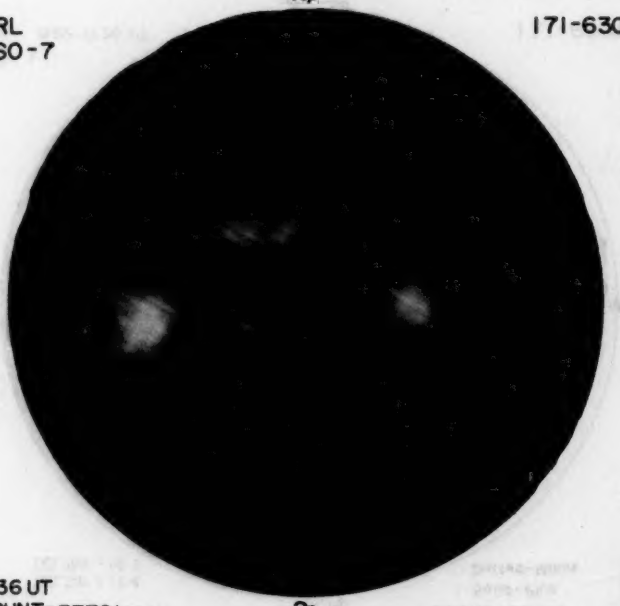
BOULDER
Np
SUNSPOTS
E
W


CORONA
1430 UT
NORIKURA
Sp

NRL
OSO-7
Np
WHITE-LIGHT
CORONA
E
W

0814 UT
Sp

NASA GSFC
OSO-7
Np
FE XV
284A


1140 UT
Sp

Np
NRL
OSO-7
171-630A
E
W

1136 UT
COUNT= 37761
Sp

APRIL 5, 1973 (P=-26.32, B_o=-6.29, L_o= 42.99)

NASA GSFC
OSO-7

X-RAY

COUNT=4172
ROLL =32.7°
P-TH =-3.64

1054 UT

Intensities in Units of 10^{-6} ergs cm^{-2} sec^{-1}

PROSPECT HILL
AFCRL

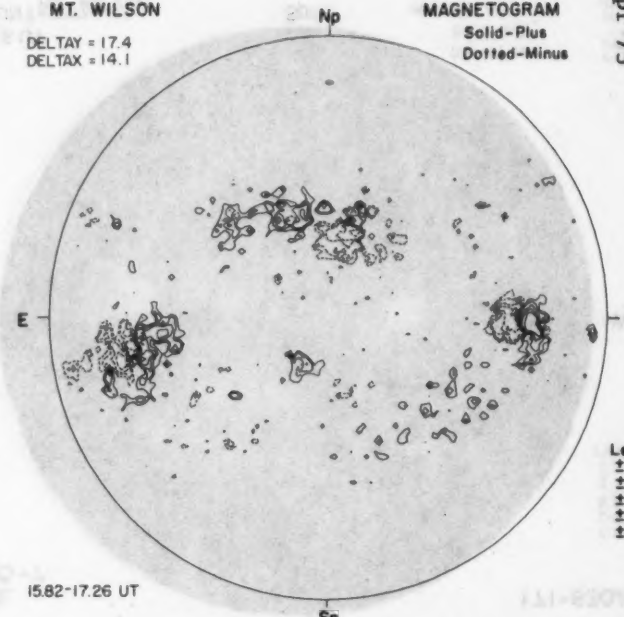
8.6 mm

Contours in Intervals of 200° K

MT. WILSON

DELTAY = 17.4
DELTAX = 14.1

MAGNETOGRAM
Solid-Plus
Dotted-Minus

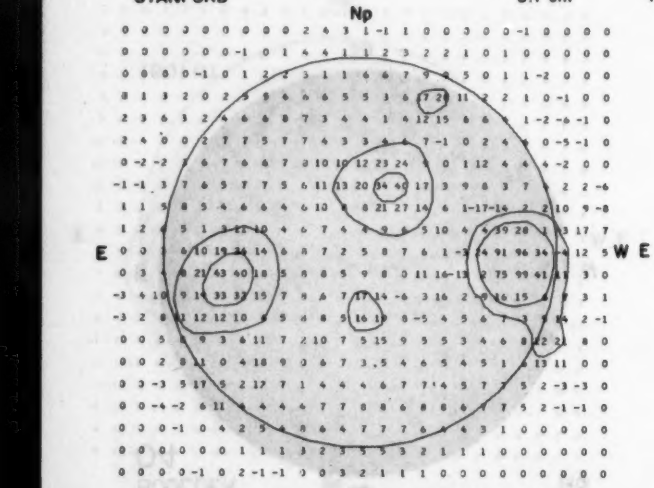


Levels
±5
±10
±20
±40
±80

15.82-17.26 UT

STANFORD

9.1 cm



20-21 UT

Brightness Unit 5,000° K

FLEURS, AUSTRALIA

21 cm

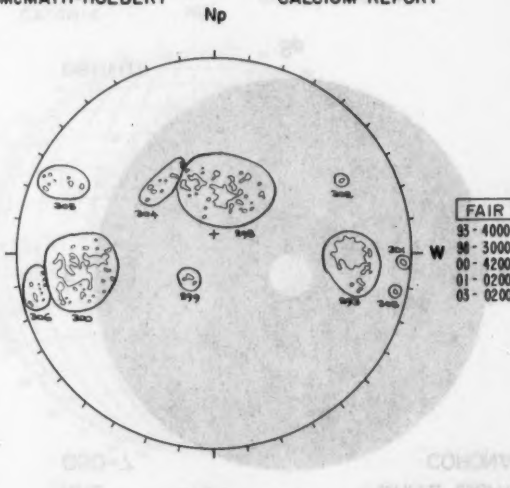
NO DATA

02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT

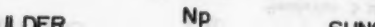
CALCULUM REPORT



1600 UT

BOULDER

Hα



BOULDER

SUNSPOTS

NRL

Sp
20-21 UT
Brightness Unit 5,000° K

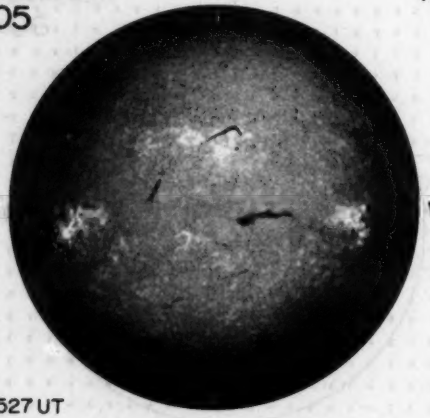
02-03 UT
Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

1600 UT

BOULDER
05

Np

Hα



E

W

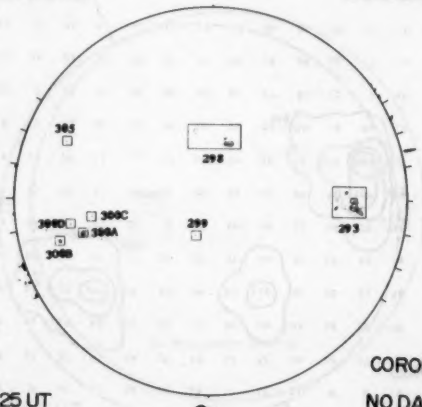
1527 UT

Sp

BOULDER

Np

SUNSPOTS



CORONA
NO DATA

1425 UT

Sp

NRL
OSO-7

WHITE-LIGHT
CORONA

E

W

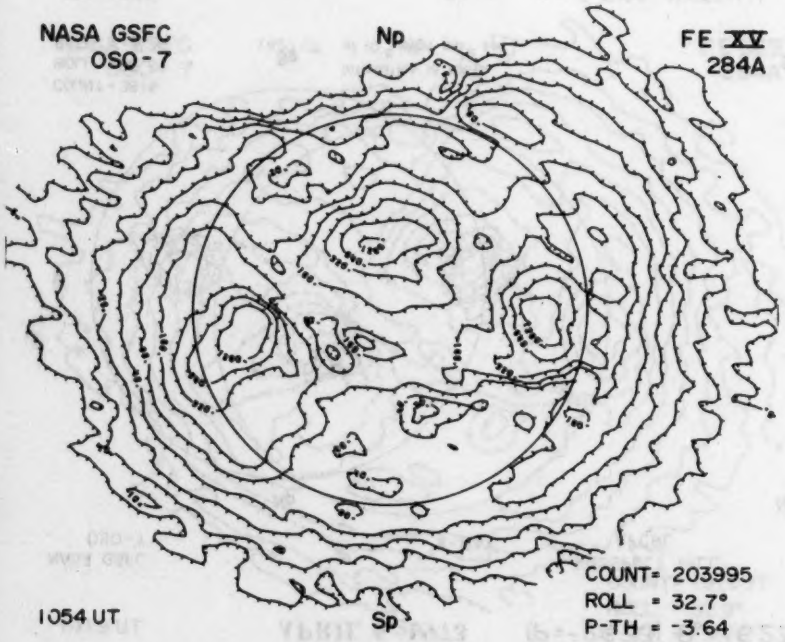
0544 UT

Sp

NASA GSFC
OSO-7

Np

FE XV
284A



COUNT= 203995
ROLL = 32.7°
P-TH = -3.64

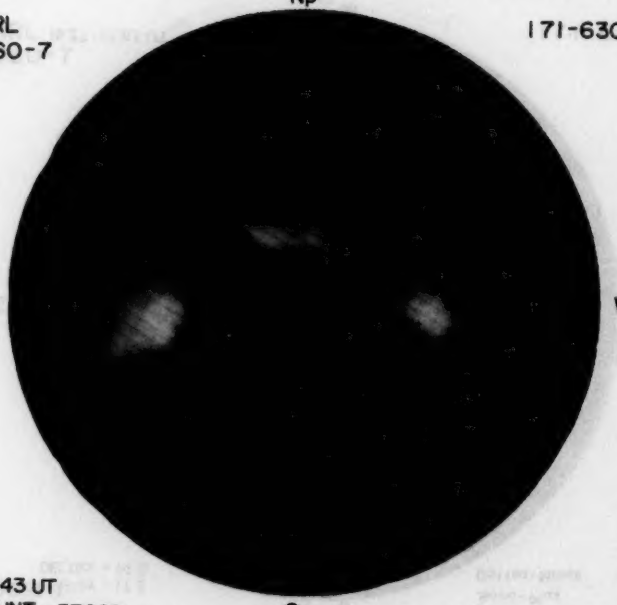
1054 UT

Sp

NRL
OSO-7

Np

171-630A



E

W

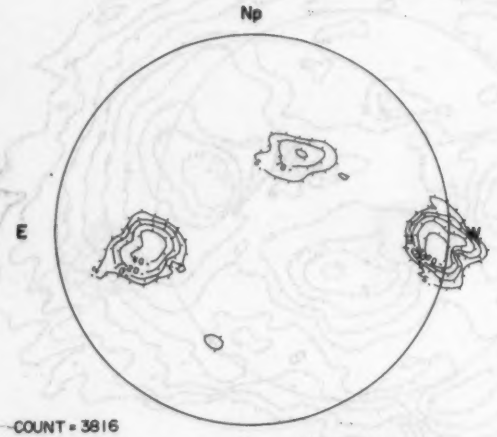
0643 UT
COUNT = 37660

Sp

APRIL 6, 1973 (P=-26.33, B_o=-6.23, L_o=29.80)

NASA GSFC
OSO-7

X-RAY



COUNT = 3816
ROLL = 32.9°
P-TH = -3.76

1427 UT

Intensities in Units of 10^{-6} ergs cm^{-2} sec^{-1}

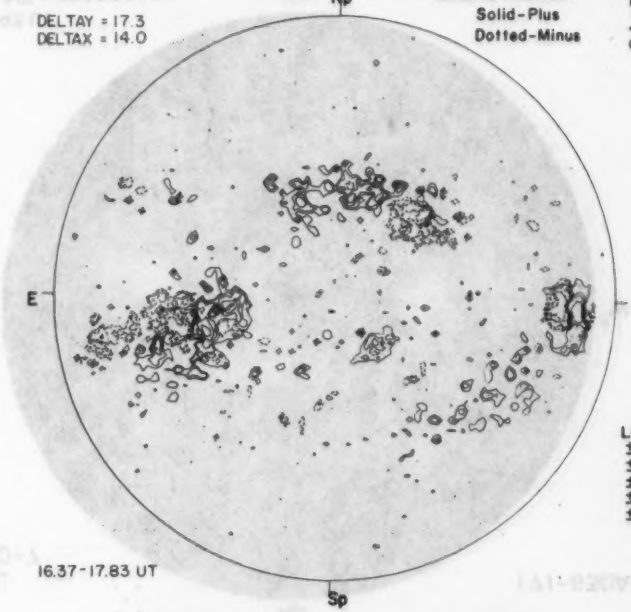
PROSPECT HILL
AFCRL

8.6 mm

Contours in Intervals of 200° K

MT. WILSON
DELTAY = 17.3
DELTAX = 14.0

MAGNETOGRAM
Solid-Plus
Dotted-Minus

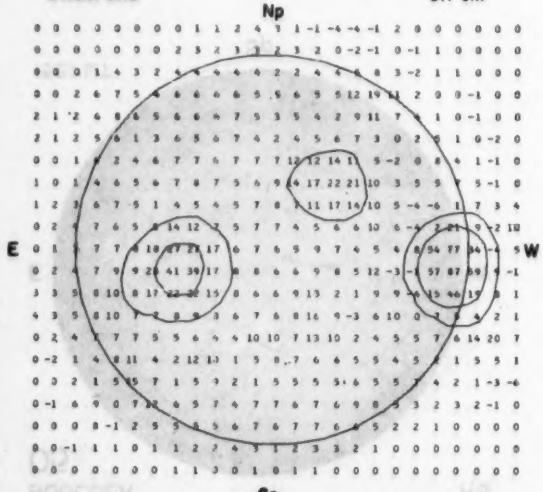


Levels
±5
±10
±20
±40
±80

16.37-17.83 UT

STANFORD

9.1 cm

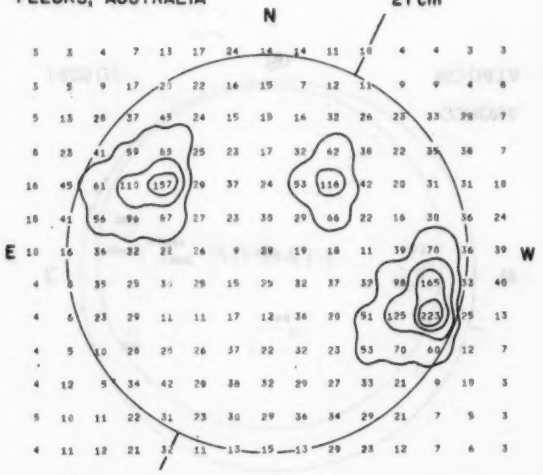


20-21 UT

Brightness Unit 5,000° K

FLEURS, AUSTRALIA

21 cm

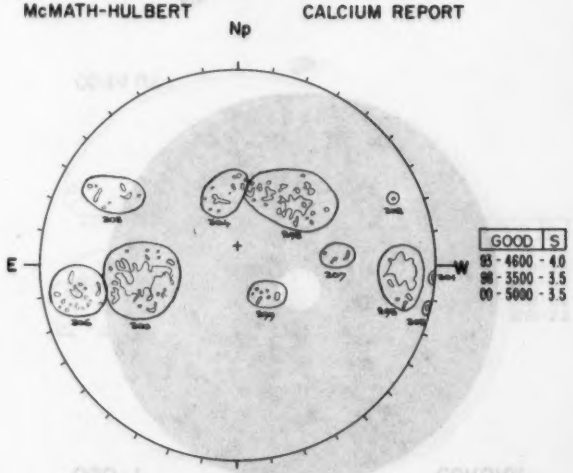


02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT

CALCIUM REPORT



1545 UT

20-21 UT

02-03 UT Brightness Unit 1,700° K

1545 UT

BOULDER
06

Np

Hα

E

NO DATA

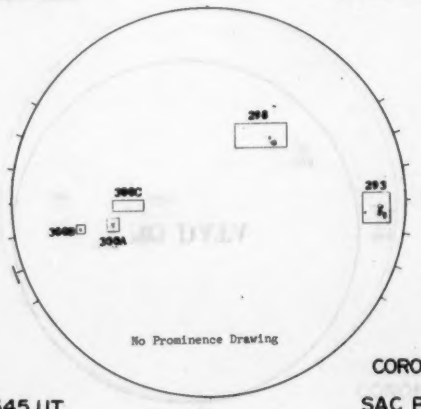
W

Sp

BOULDER

Np

SUNSPOTS



1345 UT

Sp

CORONA

SAC PEAK

NRL
OSO-7

Np

WHITE-LIGHT
CORONA

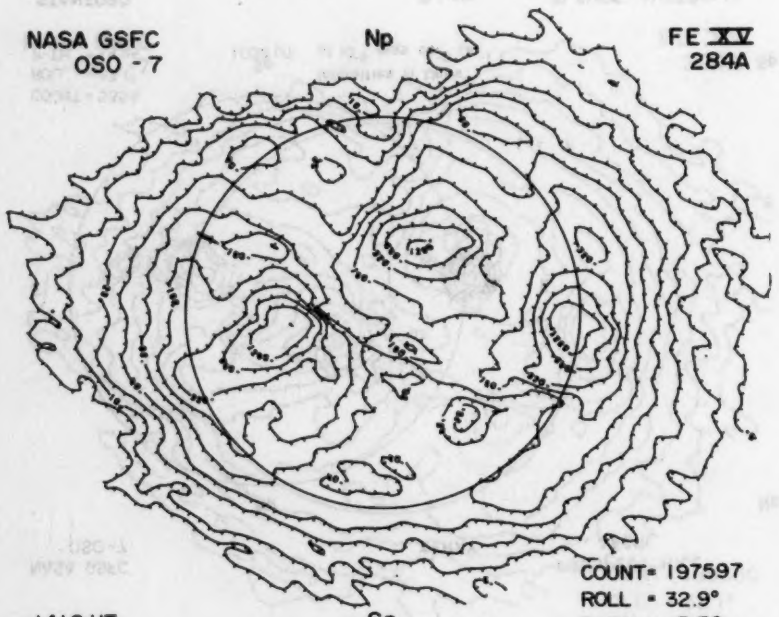
0312 UT

Sp

NASA GSFC
OSO - 7

Np

FE XV
284A



COUNT= 197597
ROLL = 32.9°
P-TH = -3.76

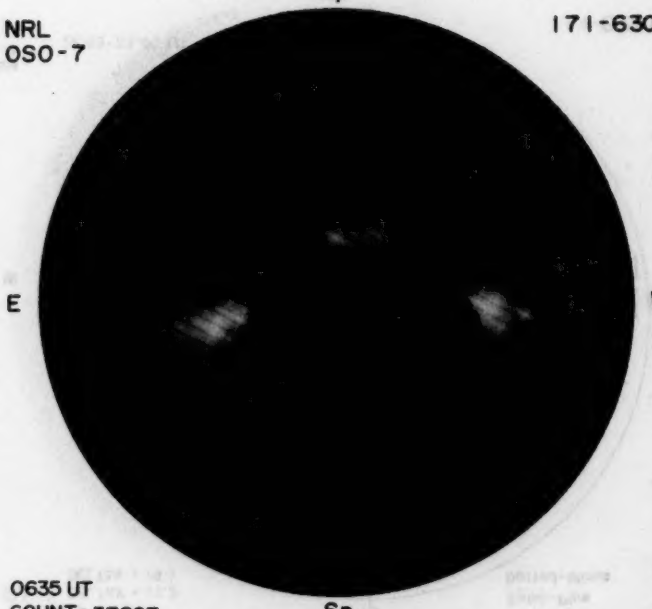
1419 UT

Sp

NRL
OSO-7

Np

171-630A



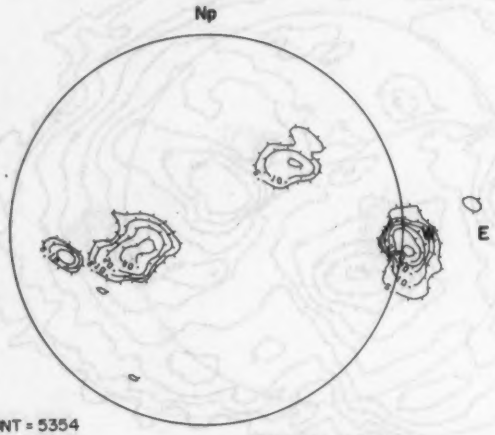
0635 UT
COUNT= 37897

Sp

APRIL 7, 1973 (P=-26.34, B_o=-6.17, L_o=16.60)

NASA GSFC
OSO-7

X-RAY



COUNT = 5354
ROLL = 33.1°
P-TH = -3.85

1032 UT

Intensities in Units of 10^{-6} ergs cm^{-2} sec^{-1}

PROSPECT HILL
AFCRL

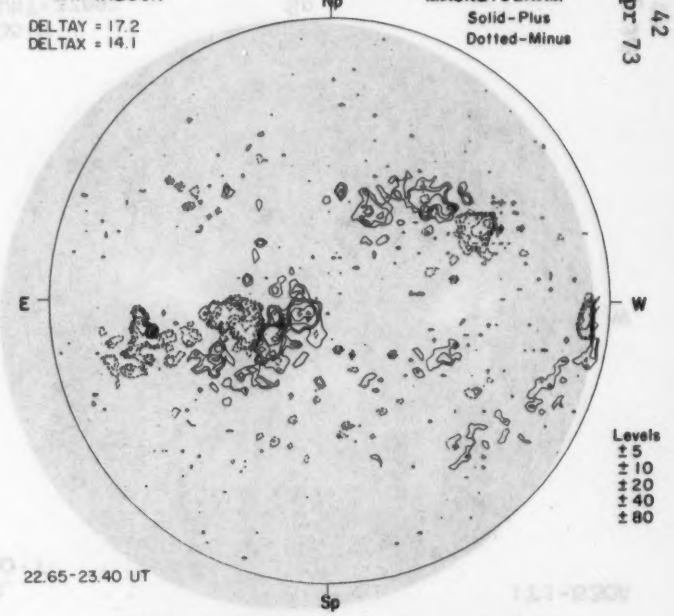
8.6 mm

Contours in Intervals of 200° K

MT. WILSON

DELTAY = 17.2
DELTAX = 14.1

MAGNETOGRAM
Solid-Plus
Dotted-Minus

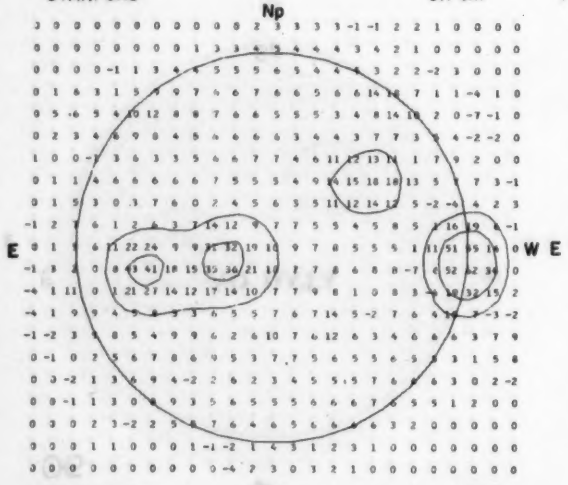


Levels
±5
±10
±20
±40
±80

22.65-23.40 UT

STANFORD

9.1 cm



20-21 UT

Brightness Unit 5,000° K

FLEURS, AUSTRALIA

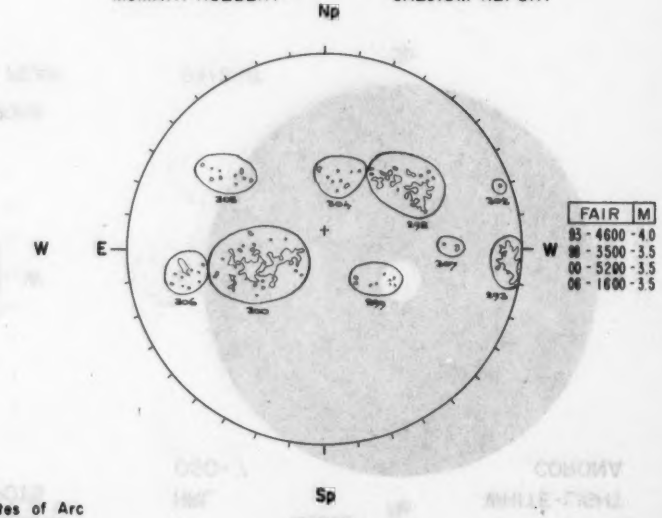
21 cm

02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT

CALCIUM REPORT



1350 UT

20-21 UT

02-03 UT Brightness Unit 1,700° K

1350 UT

BOULDER
07

Np

Hα

E

NO DATA

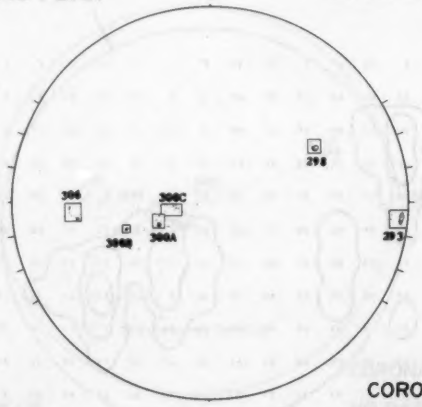
W

Sp

SAC PEAK

Np

SUNSPOTS



1615 UT

CORONA
KISLOVODSK

NRL
OSO-7

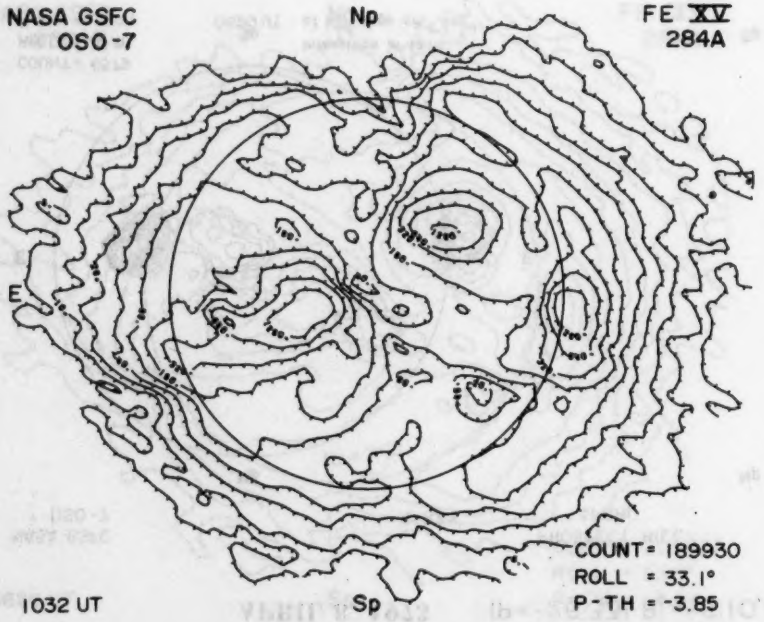
WHITE-LIGHT
CORONA

2210 UT

NASA GSFC
OSO-7

Np

FE XV
284A



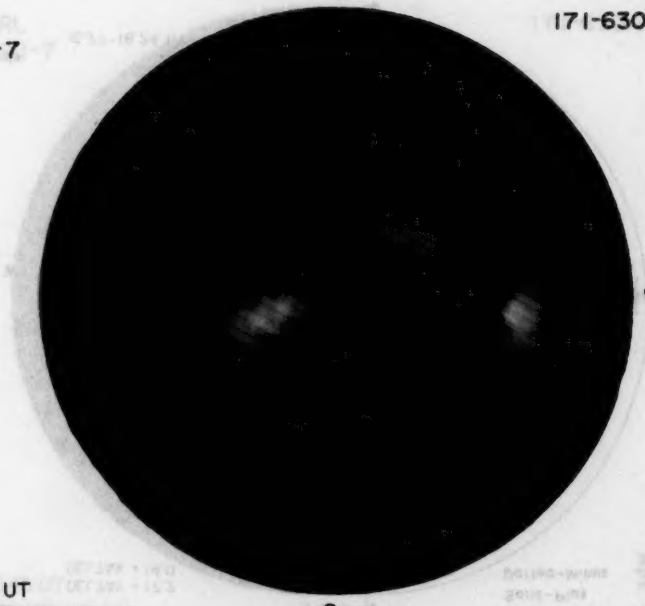
COUNT = 189930
ROLL = 33.1°
P-TH = -3.85

1032 UT

Np

NRL
OSO-7

171-630A

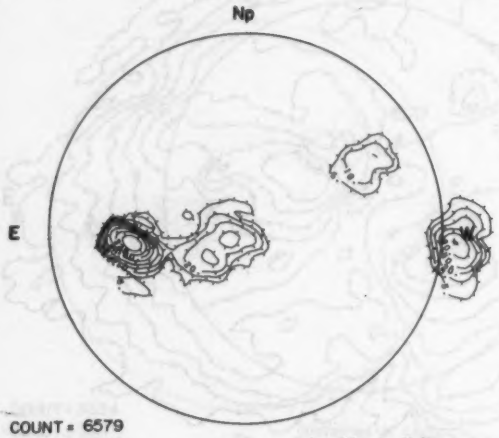


0855 UT
COUNT = 39291

APRIL 8, 1973 (P=-26.33, B_o=-6.10, L_o= 3.40)

NASA GSFC
OSO-7

X-RAY



COUNT = 6579
ROLL = 33.5°
P-TH = -3.94

0620 UT

Intensities in Units of 10^{-6} ergs cm^{-2} sec^{-1}

PROSPECT HILL
AFCRL

8.6 mm

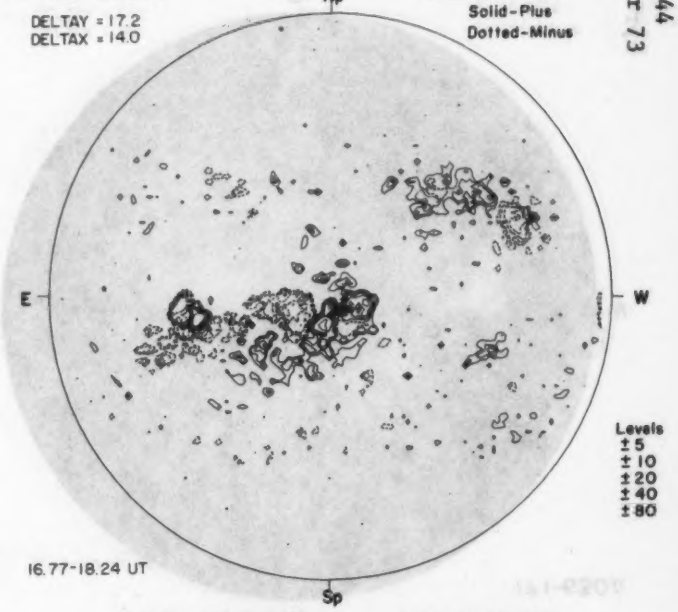
Contours in Intervals of 200° K

16.77-18.24 UT

MT. WILSON

DELTAY = 17.2
DELTAX = 14.0

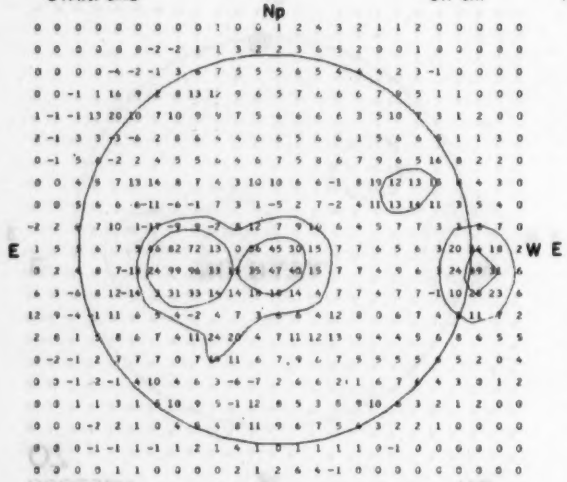
MAGNETOGRAM
Solid-Plus
Dotted-Minus



Levels
±5
±10
±20
±40
±80

STANFORD

9.1 cm

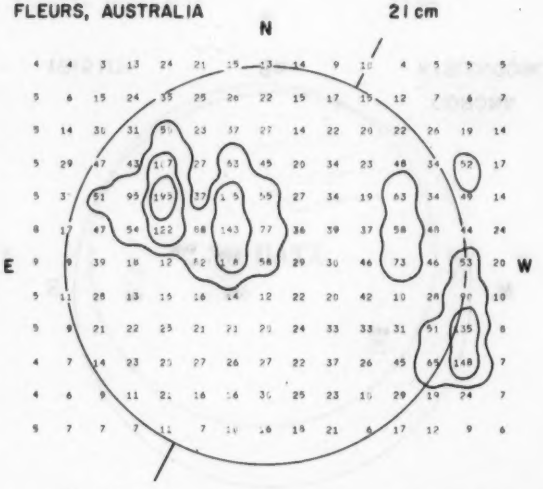


Brightness Unit 5,000° K

20-21 UT

FLEURS, AUSTRALIA

21 cm

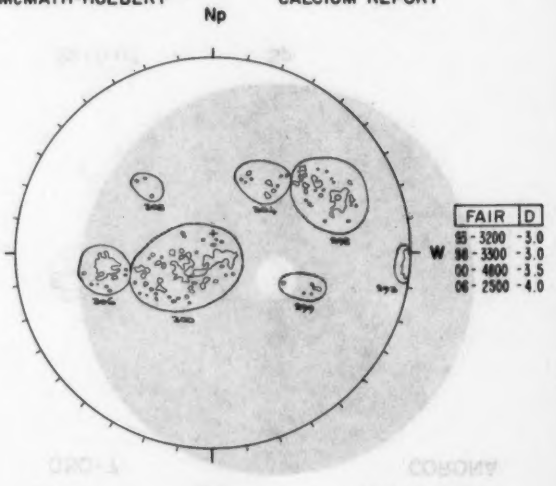


Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

02-03 UT

McMATH-HULBERT

CALCIUM REPORT



1310 UT

20-21 UT
Brightness Unit 5,000° K

02-03 UT
Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

1310 UT

BOULDER
08

Np

Hα

E

NO DATA

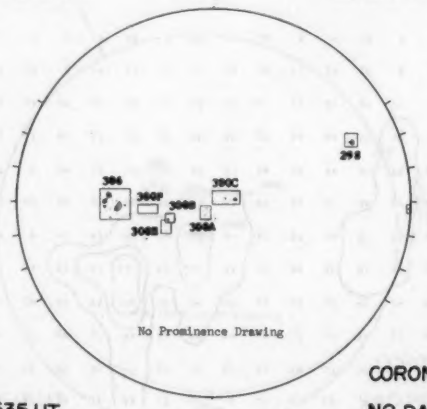
W

Sp

BOULDER

Np

SUNSPOTS



1535 UT

Sp

CORONA
NO DATA

NRL
OSO-7

WHITE-LIGHT
CORONA

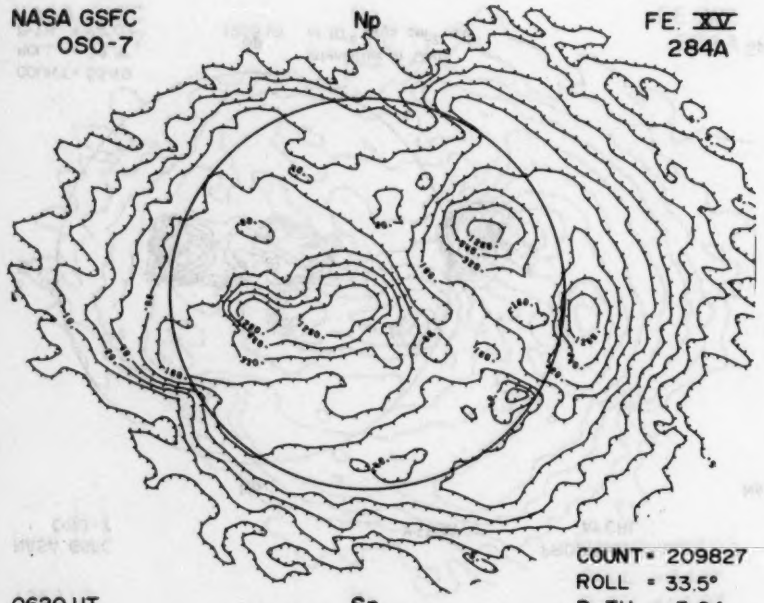
2244 UT

Sp

NASA GSFC
OSO-7

Np

FE. XV
284A



COUNT= 209827
ROLL = 33.5°
P-TH = -3.94

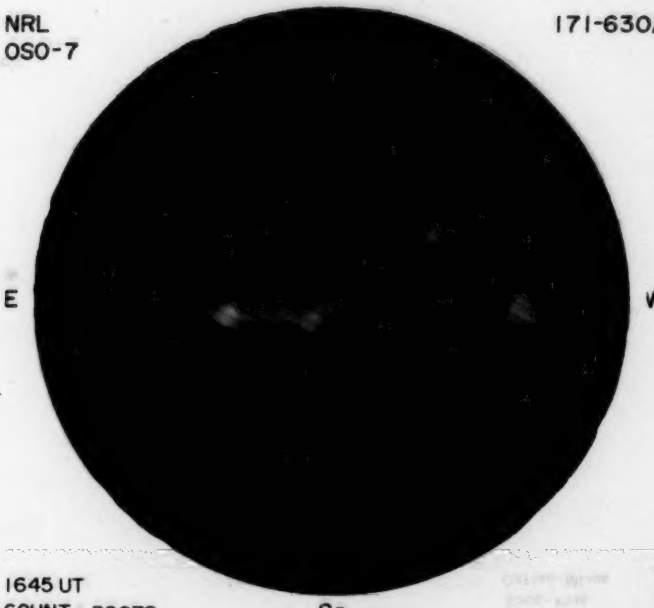
0620 UT

Sp

Np

NRL
OSO-7

171-630A



1645 UT
COUNT= 39078

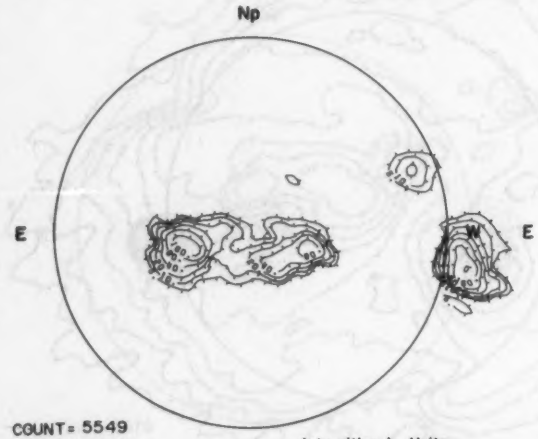
Sp

45
Apr 73

APRIL 9, 1973 (P=-26.32, B_o=-6.03, L_o=350.20)

NASA GSFC
OSO-7

X-RAY



COUNT= 5549
ROLL = 34.5°
P-TH = -4.07

1253 UT

Intensities in Units of 10^{-6} ergs cm^{-2} sec^{-1}

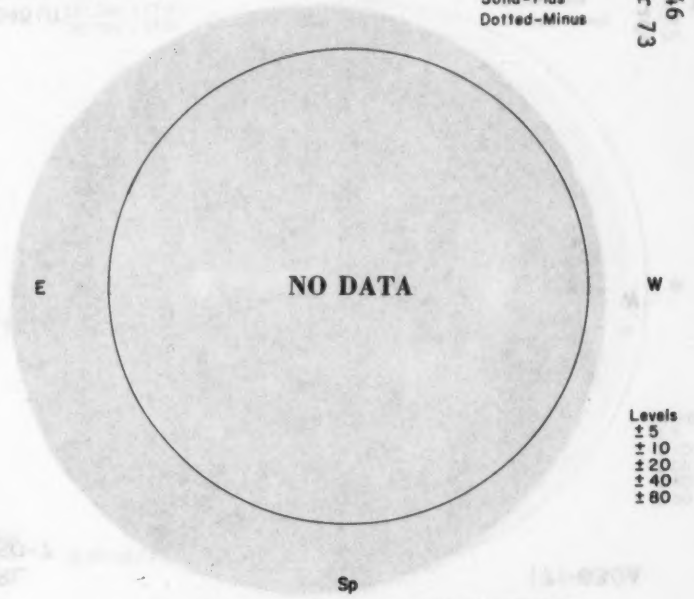
PROSPECT HILL
AFCRL

8.6 mm

Contours in Intervals of 200° K

MT. WILSON

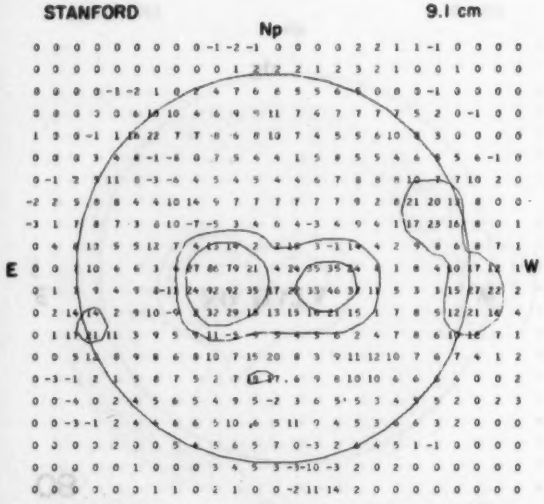
MAGNETOGRAM
Solid-Plus
Dotted-Minus



Levels
±5
±10
±20
±40
±80

STANFORD

9.1 cm

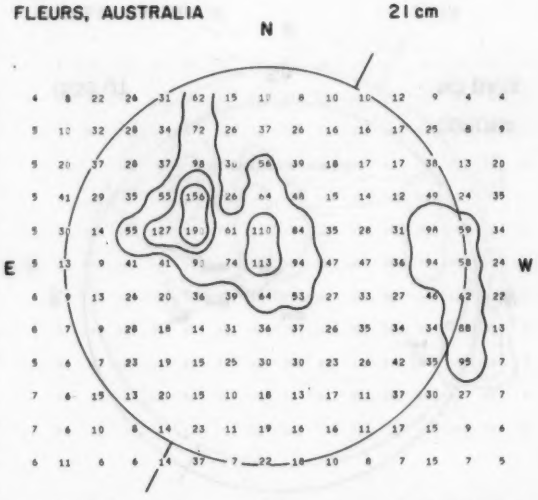


20-21 UT

Brightness Unit 5,000° K

FLEURS, AUSTRALIA

21 cm

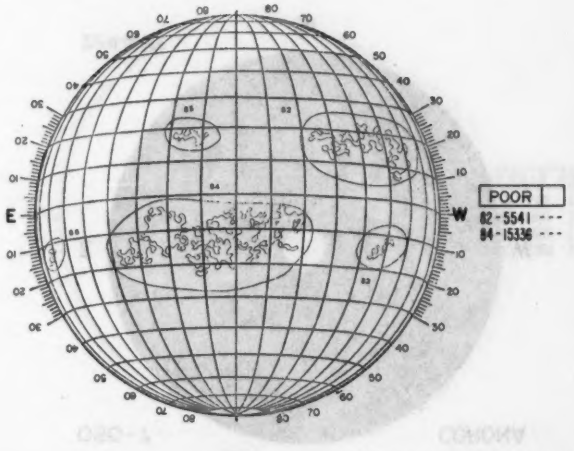


02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

CALCIUM REPORT

CATANIA



1000 UT

20-21 UT
Brightness Unit 5,000° K

02-03 UT
Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

1000 UT

BOULDER
09

Np

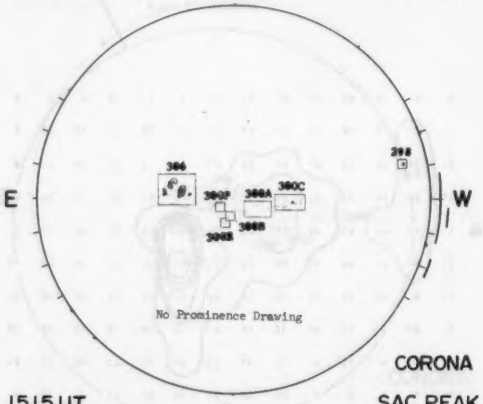
Hα

1519 UT

BOULDER

Np

SUNSPOTS



1515 UT

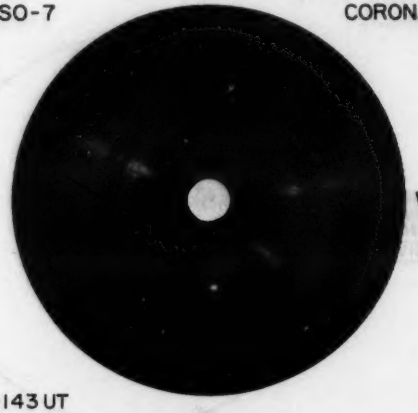
Sp

CORONA
SAC PEAK

NRL
OSO-7

Np

WHITE-LIGHT
CORONA

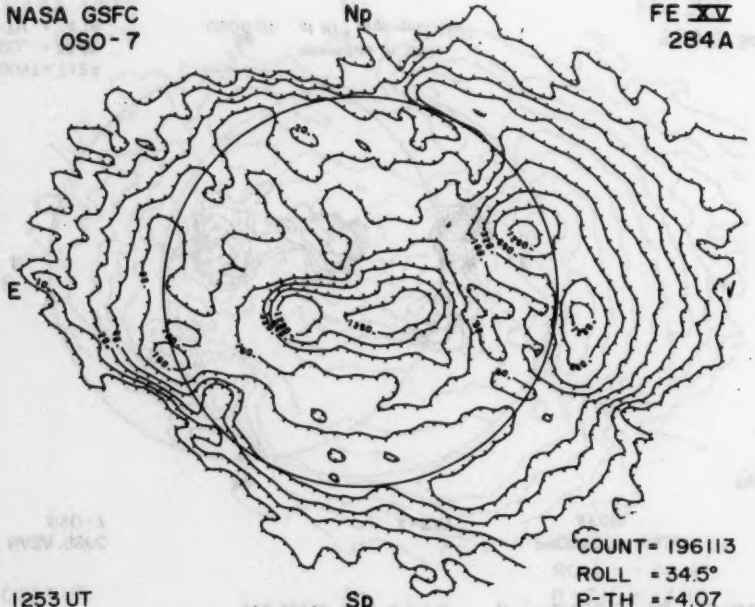


2143 UT

NASA GSFC
OSO-7

Np

FE XV
284A



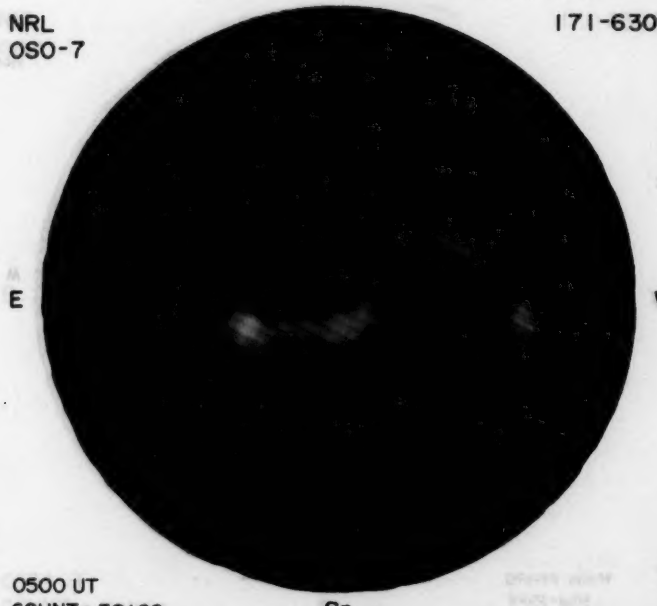
COUNT= 196113
ROLL = 34.5°
P-TH = -4.07

1253 UT

Np

NRL
OSO-7

171-630A



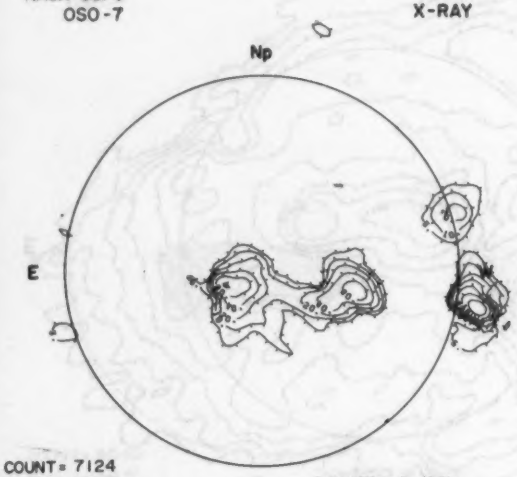
0500 UT
COUNT= 39166

47
Apr 73

APRIL 10, 1973 (P=-26.30, B_o=-5.96, L_o=337.00)

NASA GSFC
OSO-7

X-RAY

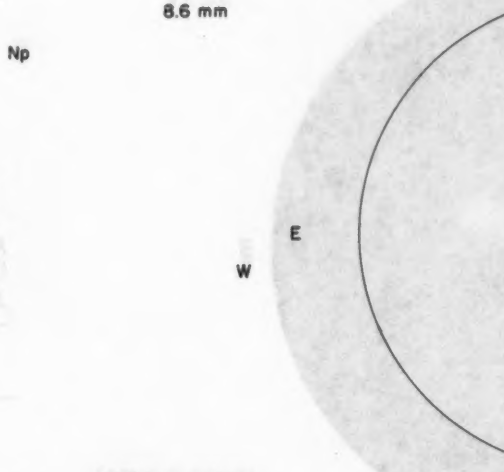


COUNT = 7124
ROLL = 35.5°
P-TH = -4.16
0906 UT

Intensities in Units of 10^{-6} ergs cm^{-2} sec^{-1}

PROSPECT HILL
AFCRL

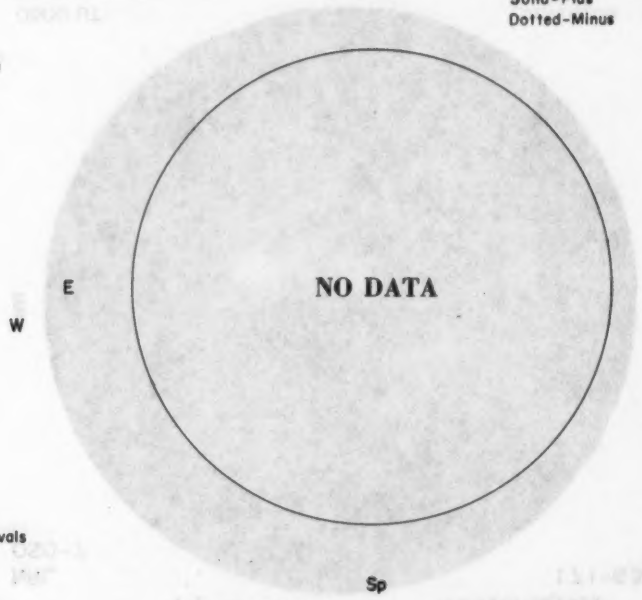
8.6 mm



Contours in Intervals of 200° K

MT. WILSON

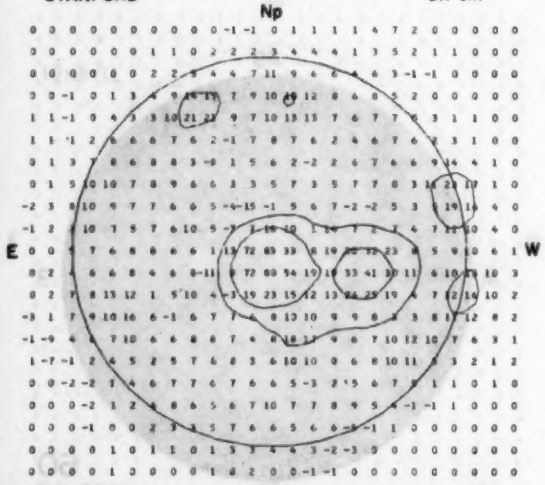
MAGNETOGRAM
Solid-Plus
Dotted-Minus



Levels
±5
±10
±20
±40
±80

STANFORD

9.1 cm

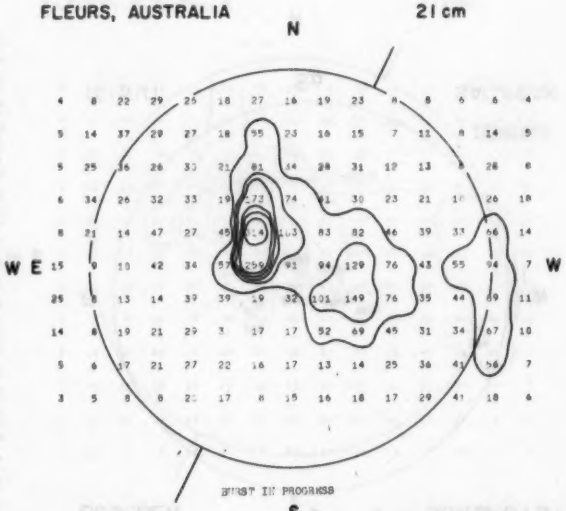


20-21 UT

Brightness Unit 5,000° K

FLEURS, AUSTRALIA

21 cm

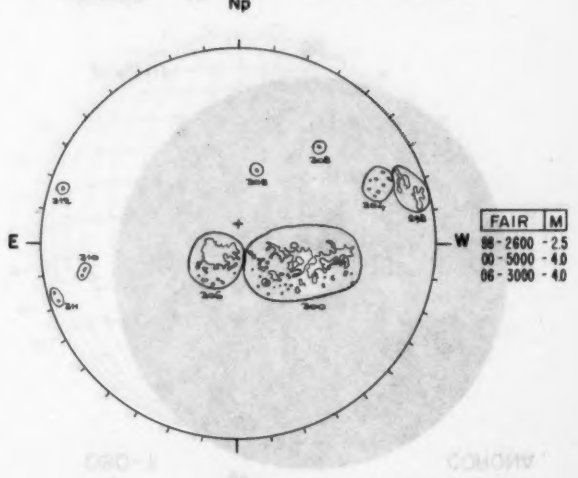


02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT

CALCIUM REPORT



1340 UT

20-21 UT

Brightness Unit 5,000° K

02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

1340 UT

BOULDER
10

Np

Hα

E

W

1728 UT

Sp

BOULDER

Np

SUNSPOTS

E

W

1435 UT

Sp

CORONA
KISLOVODSK

NRL
OSO-7

Np

WHITE-LIGHT
CORONA

E

W

1912 UT

Sp

NASA GSFC
OSO-7

Np

FE XV
284 A

E

W

COUNT = 199792
ROLL = 35.4°
P-TH = -4.15

0834 UT

Sp

NRL
OSO-7

Np

171-630A

E

W

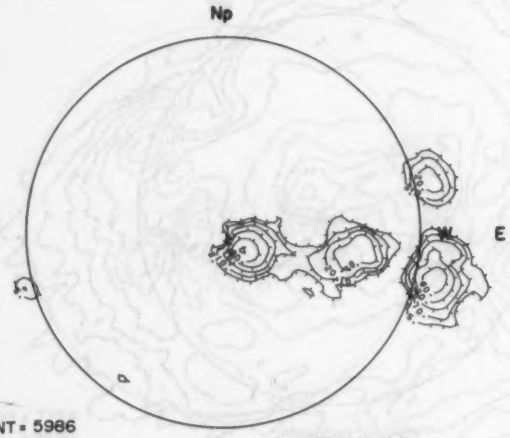
0534 UT
COUNT = 38829

Sp

APRIL 11, 1973 (P=-26.28, B_o=-5.89, L_o=323.80)

NASA GSFC
OSO-7

X-RAY



COUNT = 5986
ROLL = 36.5°
P-TH = -4.27

1111 UT

Intensities in Units of 10^{-6} ergs cm^{-2} sec^{-1}

PROSPECT HILL
AFCRL

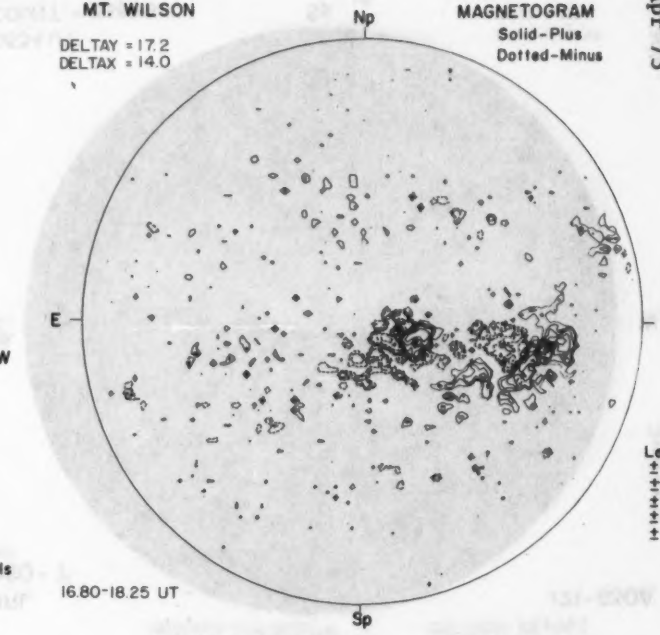
8.6 mm

Contours in Intervals of 200° K

MT. WILSON

DELTAY = 17.2
DELTAX = 14.0

MAGNETOGRAM
Solid-Plus
Dotted-Minus

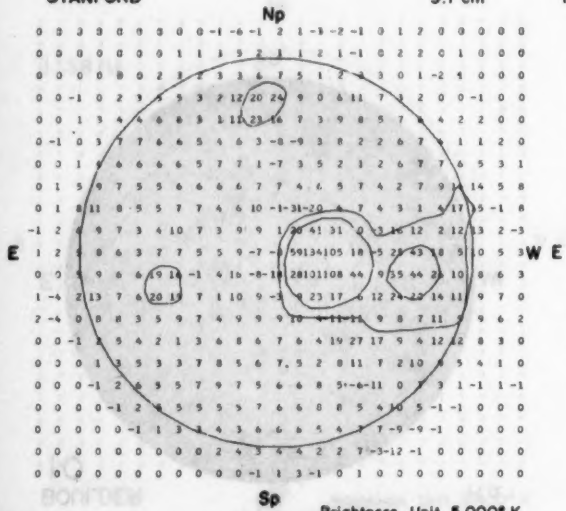


Levels
± 5
± 10
± 20
± 40
± 80

16.80-18.25 UT

STANFORD

9.1 cm

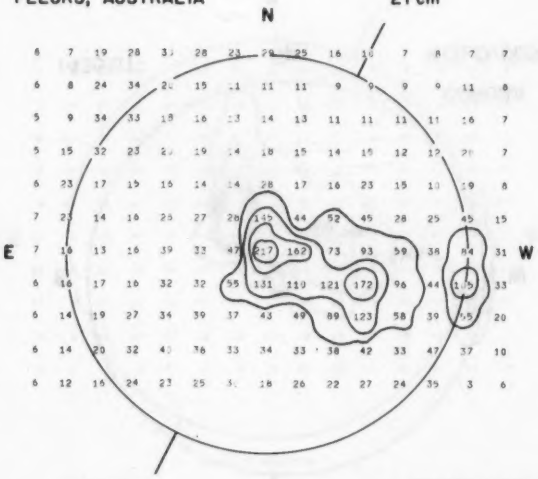


21-22 UT

Brightness Unit 5,000° K

FLEURS, AUSTRALIA

21 cm

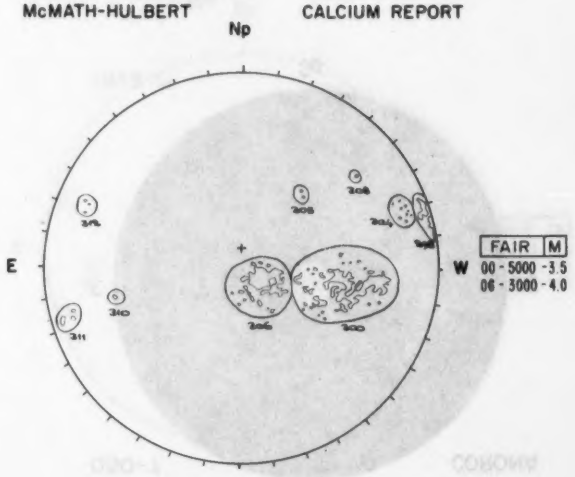


02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT

CALCIUM REPORT



1310UT

Sp

21-22 UT Brightness Unit 5,000° K

S

02-03 UT Resolution 3 Minutes of Arc Brightness Unit 1,700° K

Sp

1310UT

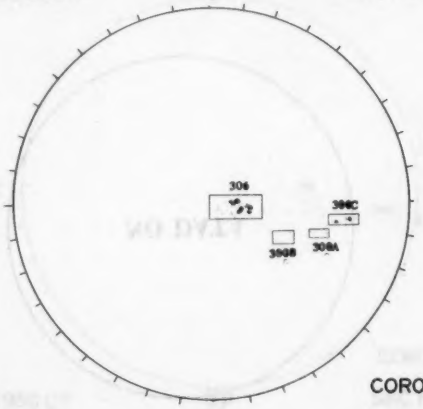
BOULDER Np Hα

II

E NO DATA W

Sp

BOULDER Np SUNSPOTS

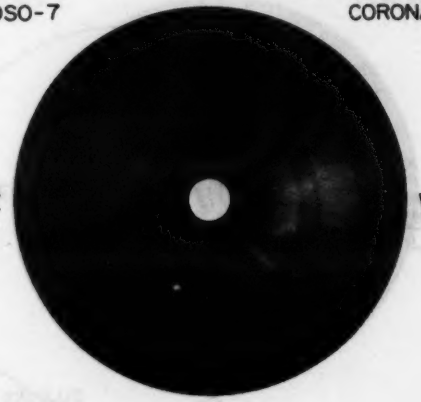


E W

1445UT Sp CORONA NO DATA

NRL Np WHITE-LIGHT CORONA

OSO-7

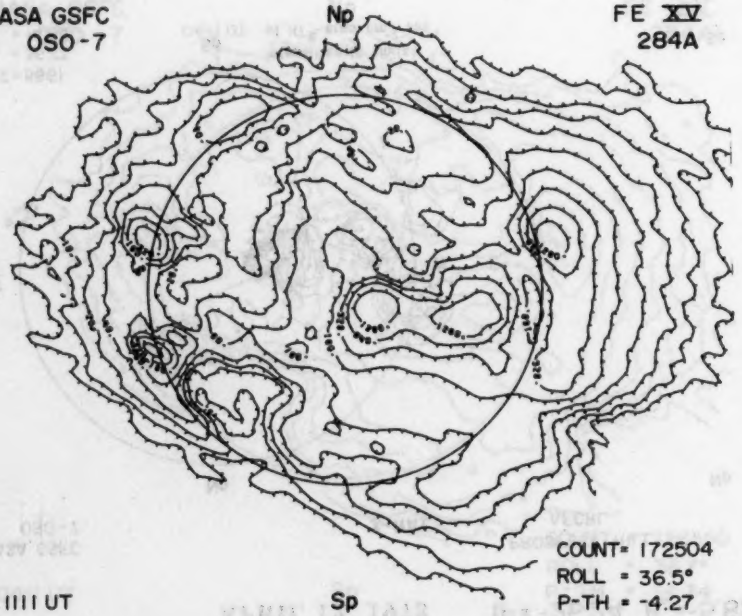


E W

1813UT Sp

NASA GSFC Np FE XV 284A

OSO-7



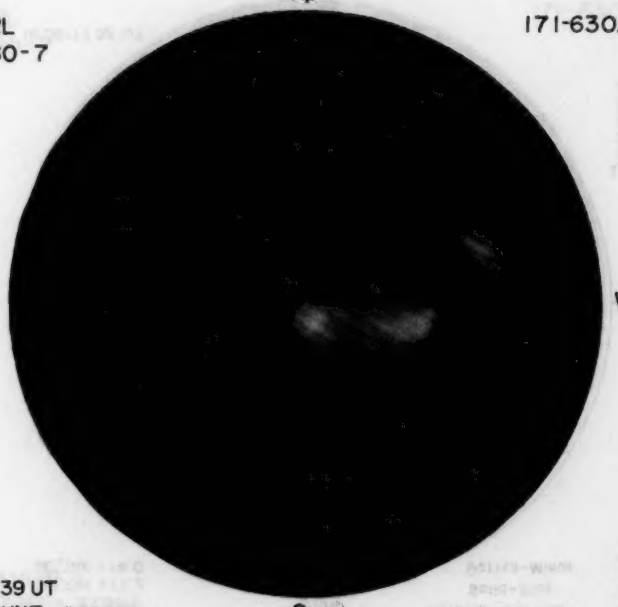
E

COUNT= 172504
ROLL = 36.5°
P-TH = -4.27

1111 UT Sp

NRL Np 171-630A

OSO-7



E W

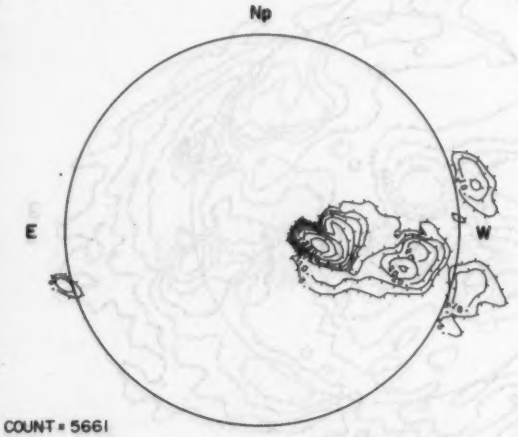
0739 UT
COUNT= 38602

Sp

APRIL 12, 1973 (P = -26.24, B_o = -5.82, L_o = 310.60)

NASA GSFC
OSO-7

X-RAY



COUNT = 5661
ROLL = 36.7°
P-TH = -4.34

0411 UT

Intensities in Units of 10^{-6} ergs cm^{-2} sec^{-1}

PROSPECT HILL
AFCRL

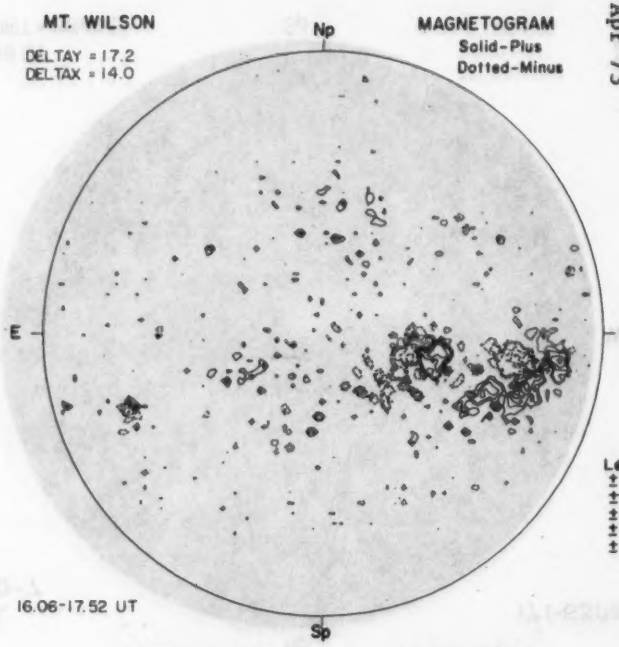
8.6 mm

Contours in Intervals of 200° K

MT. WILSON

DELTAY = 17.2
DELTAX = 14.0

MAGNETOGRAM
Solid-Plus
Dotted-Minus

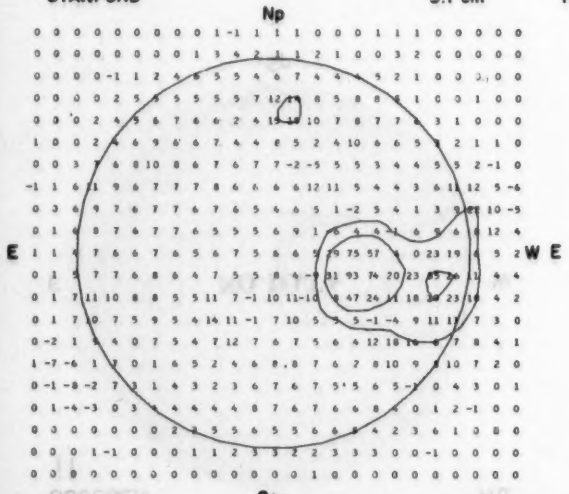


Levels
±5
±10
±20
±40
±80

16.06-17.52 UT

STANFORD

9.1 cm



20-21 UT

Brightness Unit 5,000° K

FLEURS, AUSTRALIA

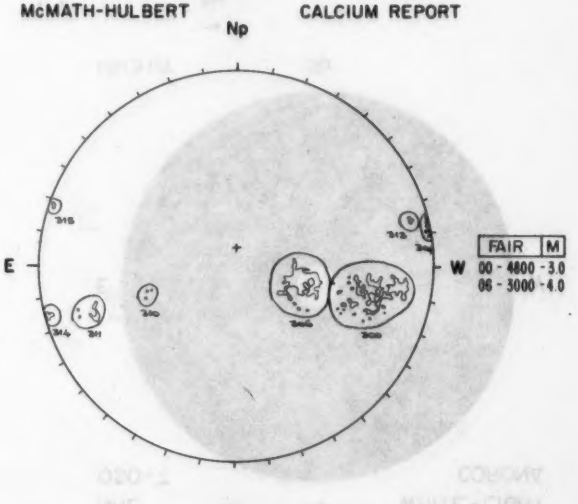
21 cm

02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT

CALCIUM REPORT



1300 UT

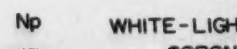
BOULDER

Hα

BOULDER

SUNSPOTS

NRL



WHITE-LIGHT

20-21 UT

02-03 UT

Brightness Unit 1,700° K

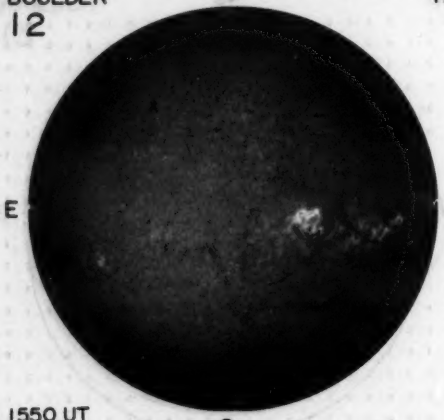
1300 UT

BOULDER

12

Np

Hα



E

W

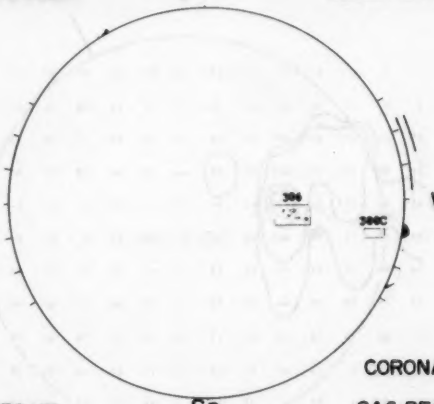
1550 UT

Sp

BOULDER

Np

SUNSPOTS



E

W

1930 UT

Sp

CORONA

SAC PEAK

NRL

OSO-7

Np

WHITE-LIGHT

CORONA

E

W

2322 UT

Sp

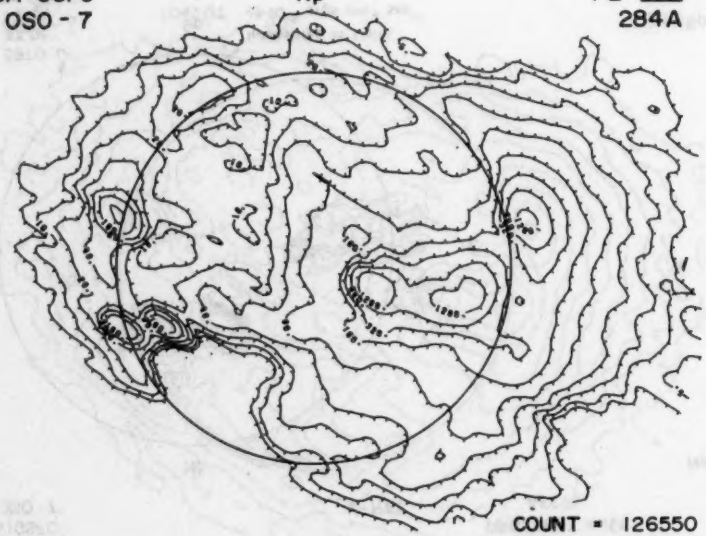
NASA GSFC

OSO - 7

Np

FE XV

284 A



E

COUNT = 126550

ROLL = 36.7°

P-TH = -4.34

0411 UT

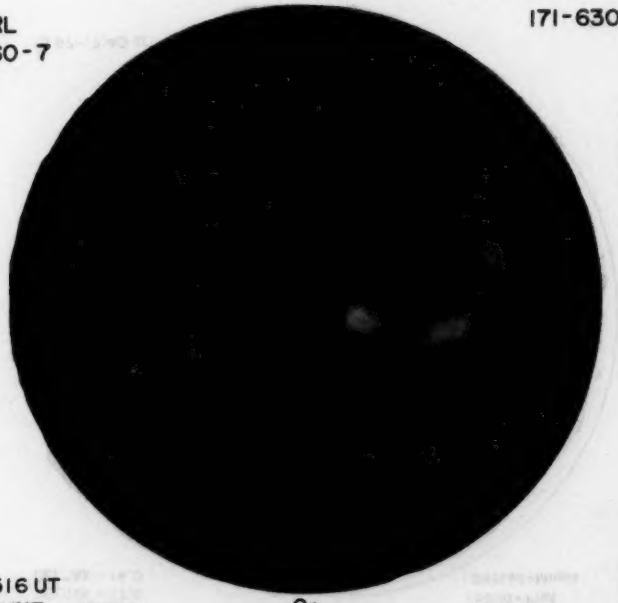
Sp

Np

NRL

OSO-7

171-630 A



E

W

0516 UT

COUNT = 37266

Sp

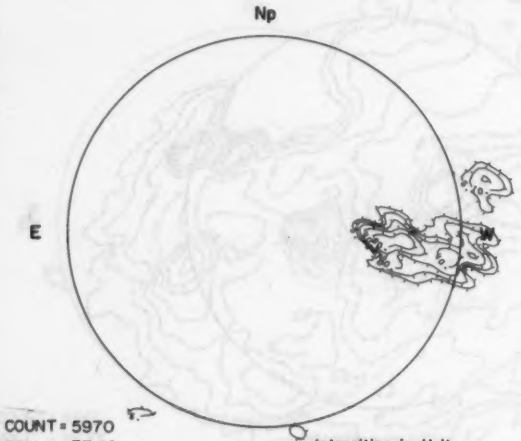
53

Apr 73

APRIL 13, 1973 (P = -26.20, B_o = -5.74, L_o = 297.40)

NASA GSFC
OSO-7

X-RAY



COUNT = 5970
ROLL = 37.0°
P-TH = -4.48

1041 UT

Intensities in Units of 10^{-6} ergs cm^{-2} sec^{-1}

PROSPECT HILL
AFCRL

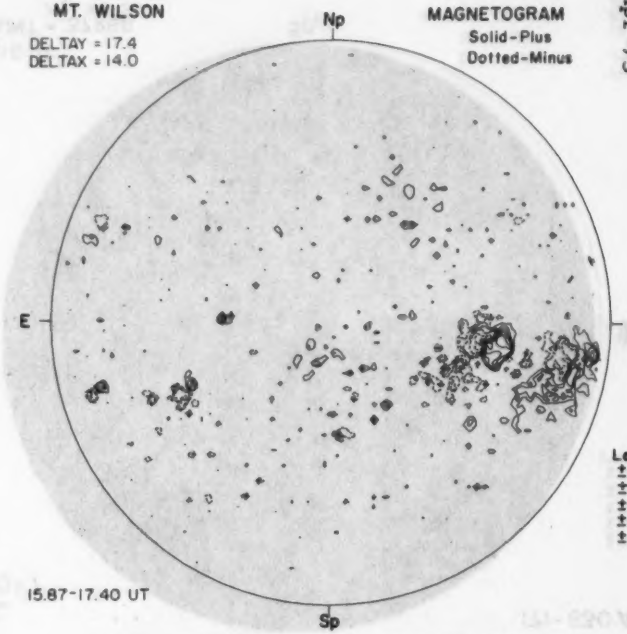
8.6 mm

Contours in Intervals of 200° K

MT. WILSON

DELTAY = 17.4
DELTAX = 14.0

MAGNETOGRAM
Solid-Plus
Dotted-Minus

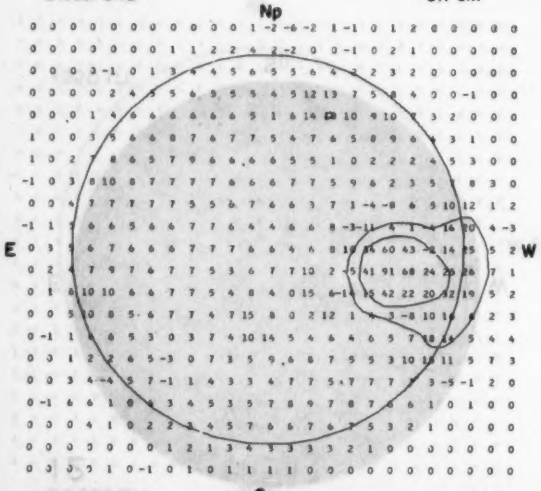


Levels
±5
±10
±20
±40
±80

15.87-17.40 UT

STANFORD

9.1 cm

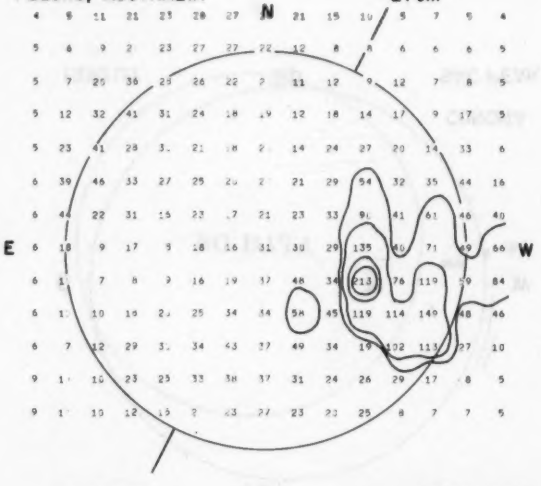


20-21 UT

Brightness Unit 5,000° K

FLEURS, AUSTRALIA

21 cm

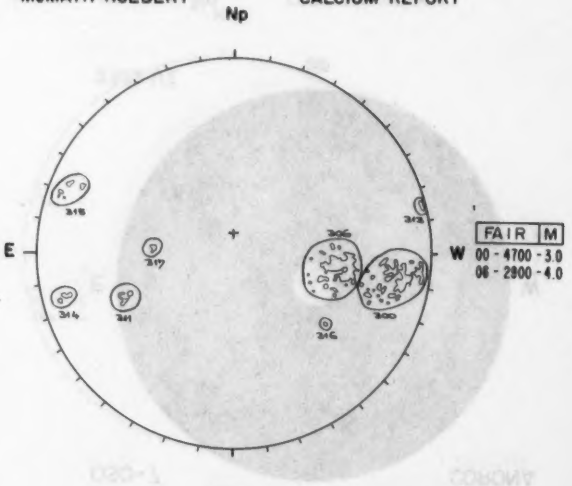


02-03 UT

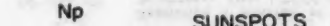
Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT

CALCIUM REPORT



1215 UT



Sp
20-21 UT
Brightness Unit 5,000° K

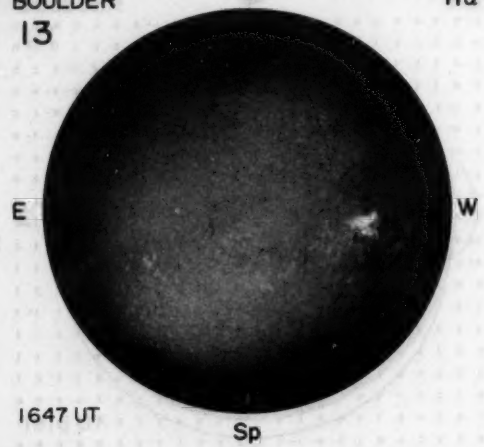
S
02-03 UT
Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

Sp
1215 UT

BOULDER
13

Np

Hα



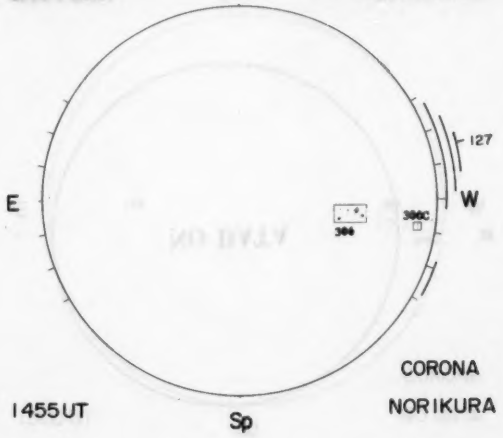
1647 UT

Sp

SAC PEAK

Np

SUNSPOTS



CORONA
NORIKURA

1455 UT

Sp

NRL
OSO-7

Np

WHITE-LIGHT
CORONA

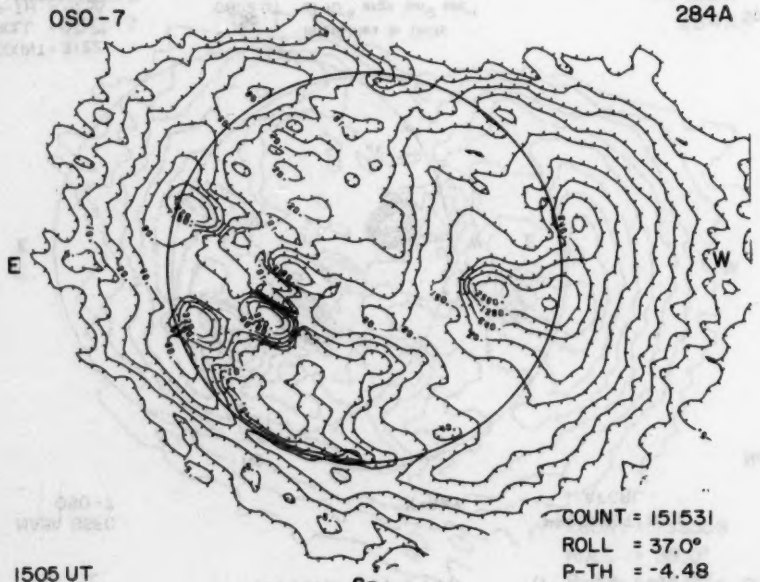
2051 UT

Sp

Np

NASA GSFC
OSO-7

FE XV
284A



COUNT = 151531
ROLL = 37.0°
P-TH = -4.48

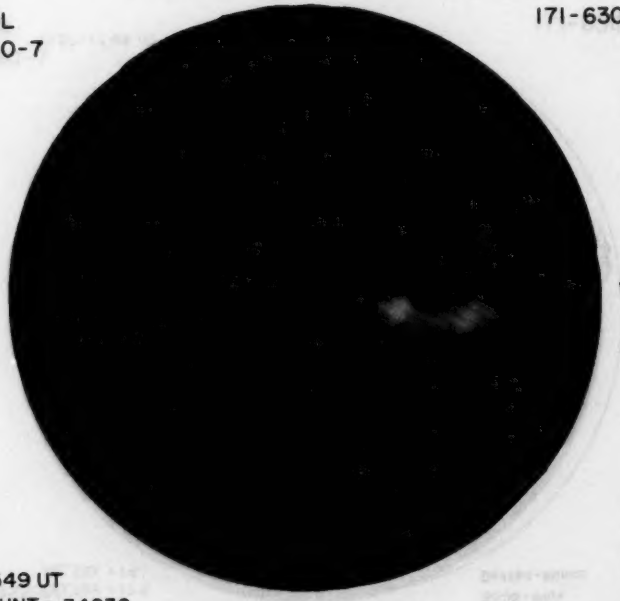
1505 UT

Sp

Np

NRL
OSO-7

171-630A



0549 UT
COUNT = 34930

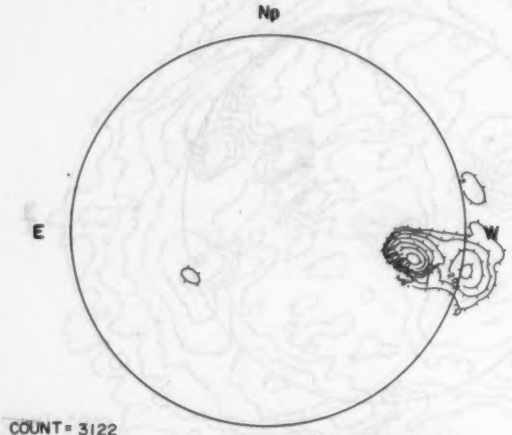
Sp

55
Apr 73

APRIL 14, 1973 (P=-26.15, B_o=-5.67, L_o=284.20)

NASA GSFC
OSO-7

X-RAY



COUNT = 3122
ROLL = 37.7°
P-TH = -4.55

0822 UT

Intensities in Units of 10^{-6} ergs cm^{-2} sec^{-1}

PROSPECT HILL
AFCRL

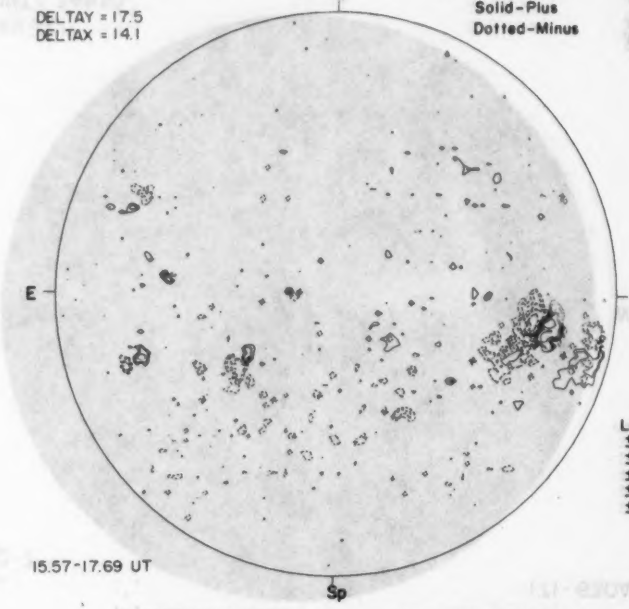
8.6 mm

Contours in Intervals of 200° K

MT. WILSON

DELTAY = 17.5
DELTAX = 14.1

MAGNETOGRAM
Solid-Plus
Dotted-Minus

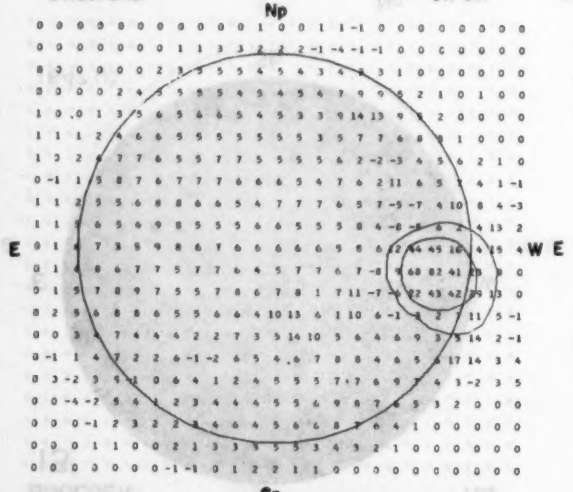


Levels
±5
±10
±20
±40
±80

15.57-17.69 UT

STANFORD

9.1 cm



20-21 UT

Brightness Unit 5,000° K

FLEURS, AUSTRALIA

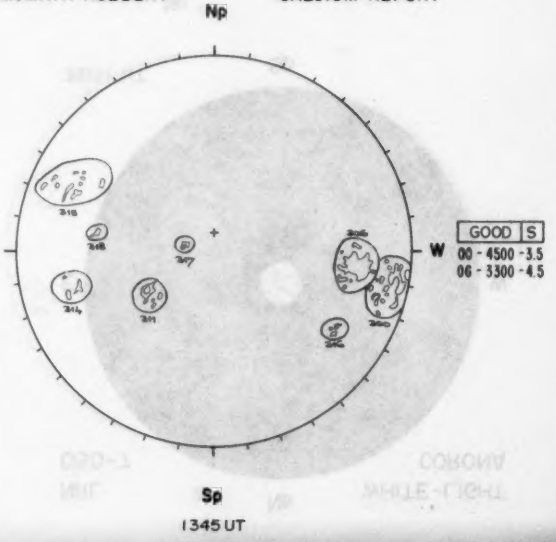
21 cm

02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

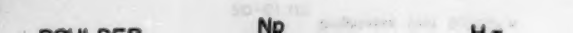
McMATH-HULBERT

CALCIUM REPORT



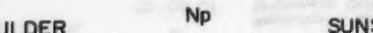
1345 UT

BOULDER

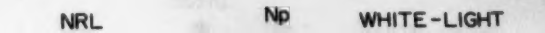


H =

SUNSPOTS



NRL



WHITE-LIGHT

20-21 UT

02-03 UT
Brightness Unit 1,700° K

1345 UT

BOULDER
14

Np

Hα

E

W

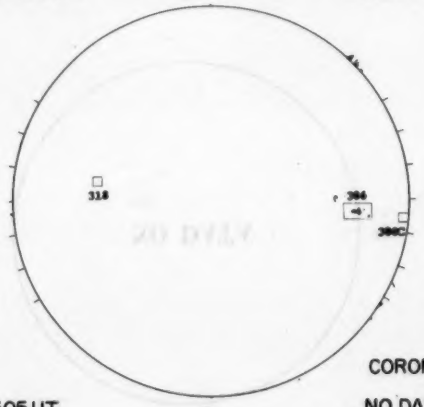
1516 UT

Sp

BOULDER

Np

SUNSPOTS



E

W

CORONA

1505 UT

Sp

NO DATA

NRL
OSO-7

Np

WHITE-LIGHT
CORONA

E

W

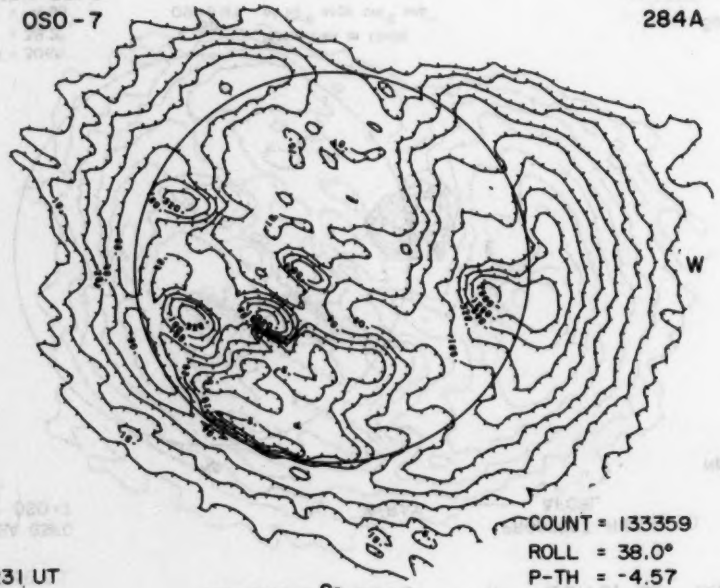
1820 UT

Sp

NASA GSFC
OSO-7

Np

FE XV
284A



E

W

COUNT = 133359
ROLL = 38.0°
P-TH = -4.57

1231 UT

Sp

NRL
OSO-7

Np

171-630A

E

W

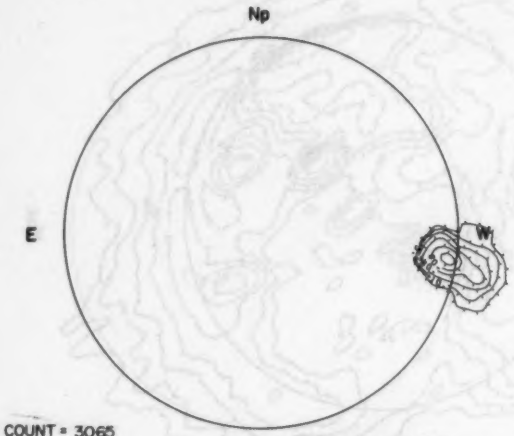
0622 UT
COUNT = 34245

Sp

APRIL 15, 1973 (P = -26.10, B_o = -5.59, L_o = 270.99)

NASA GSFC
OSO-7

X-RAY



COUNT = 3065
ROLL = 38.2°
P-TH = -4.65

0946 UT

Intensities in Units of 10^{-6} ergs cm^{-2} sec^{-1}

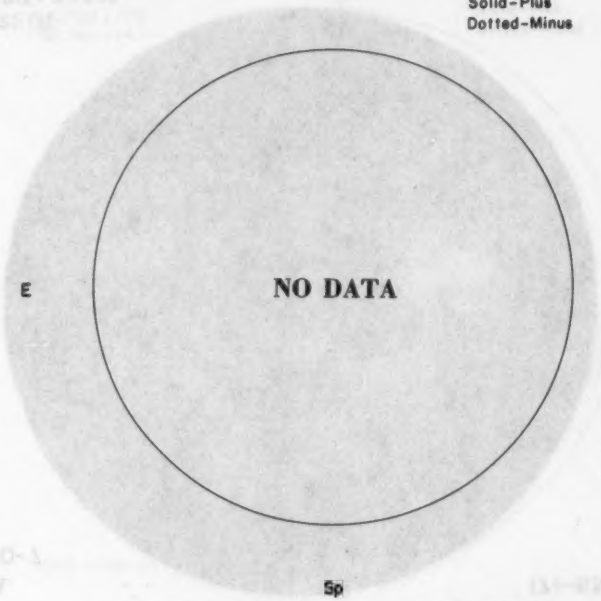
PROSPECT HILL
AFCRL

8.6 mm

Contours in Intervals of 200° K

MT. WILSON

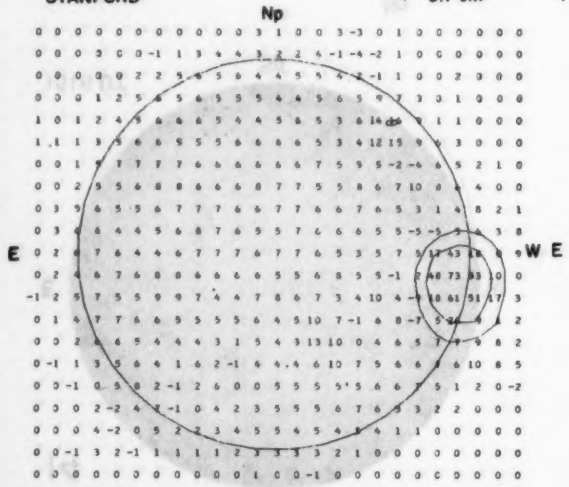
MAGNETOGRAM
Solid-Plus
Dotted-Minus



Levels
±5
±10
±20
±40
±80

STANFORD

9.1 cm



20-21 UT

Brightness Unit 5,000° K

FLEURS, AUSTRALIA

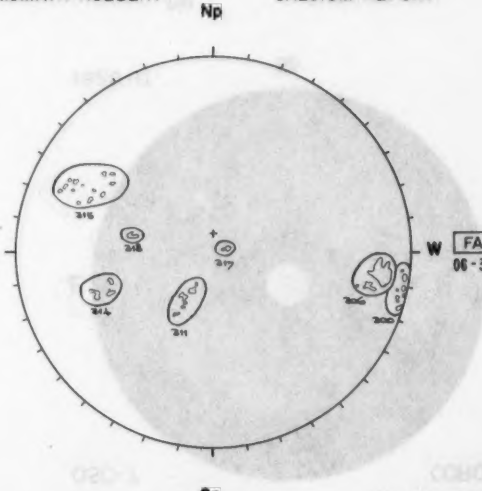
21 cm

02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT

CALCULUM REPORT



1250 UT

20-21 UT

Brightness Unit 5,000° K

02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

1250 UT

BOULDER
15

Np

Hα

E

NO DATA

W

Sp

SAC PEAK

Np

SUNSPOTS

E

W

1450 UT

Sp

CORONA
NO DATA

NRL
OSO-7

Np

WHITE-LIGHT
CORONA

E

W

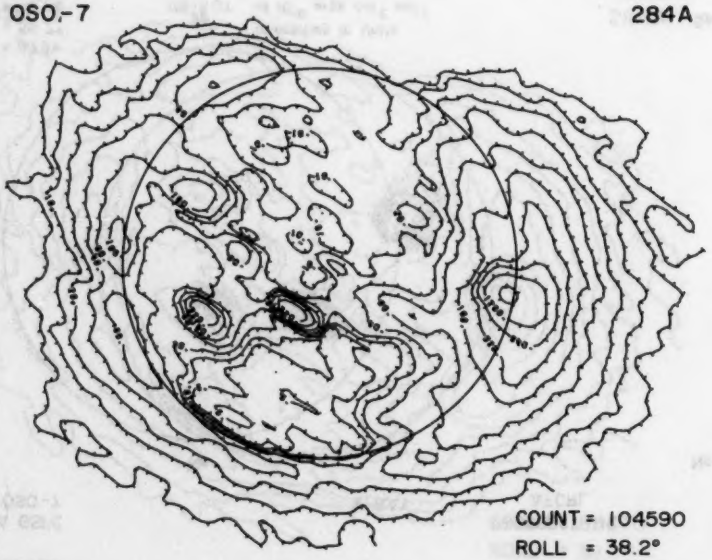
2219 UT

Sp

NASA GSFC
OSO-7

Np

FE XV
284A



E

COUNT = 104590
ROLL = 38.2°
P-TH = -4.65

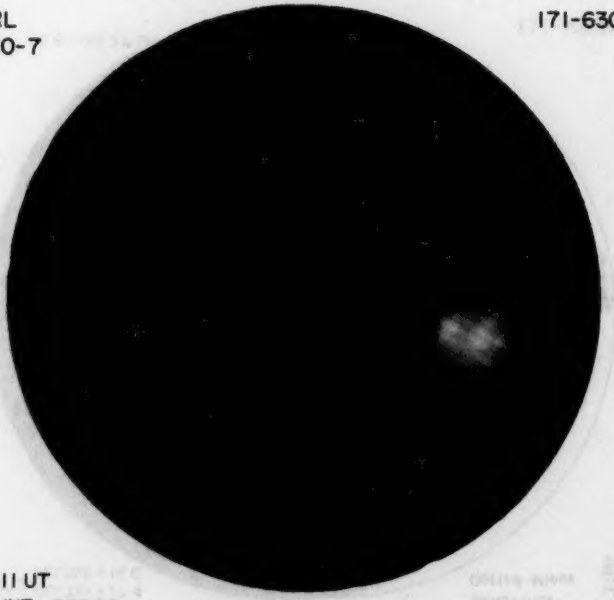
0946 UT

Sp

NRL
OSO-7

Np

171-630A



E

W

0211 UT
COUNT = 35590

Sp

59
Apr 73

APRIL 16, 1973 (P = -26.04, B_o = -5.51, L_o = 257.79)

Apr 73 60

NASA GSFC
OSO-7

X-RAY

COUNT = 4791
ROLL = 38.7°
P-TH = -4.74

Np

E W

Sp

0915 UT

Intensities in Units of 10^{-6} ergs cm^{-2} sec^{-1}

PROSPECT HILL
AFCRL

8.6 mm

Np

E W

Sp

Contours in Intervals of 200° K

MT. WILSON

DELTAY = 17.4
DELTAX = 14.0

MAGNETOGRAM
Solid-Plus
Dotted-Minus

Np

E W

Sp

Levels
±5
±10
±20
±40
±80

18.81-20.27 UT

STANFORD

9.1 cm

Np

E W

Sp

20-21 UT

Brightness Unit 5,000° K

FLEURS, AUSTRALIA

21 cm

N

E W

S

02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT

CALCIUM REPORT

Np

E W

FAIR M
06-3000 -4.0

Sp

1250 UT

BOULDER

Np

Hα

E W

Sp

BOULDER

Np

E W

Sp

SUNSPOTS

NRL

Np

WHITE-LIGHT

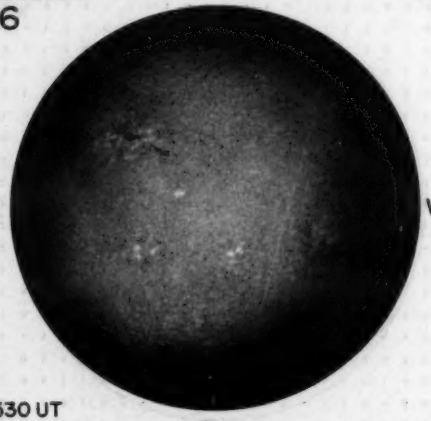
E W

Sp

20-21 UT 02-03 UT Brightness Unit 1,700° K 1250 UT

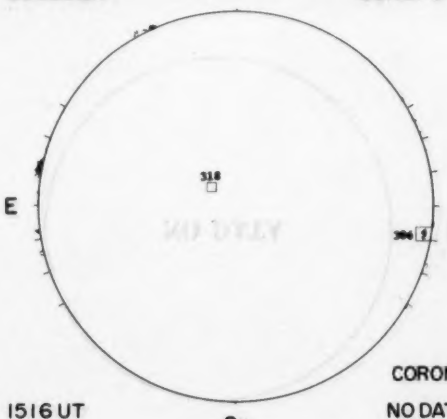
BOULDER Np Hα

16



1530 UT

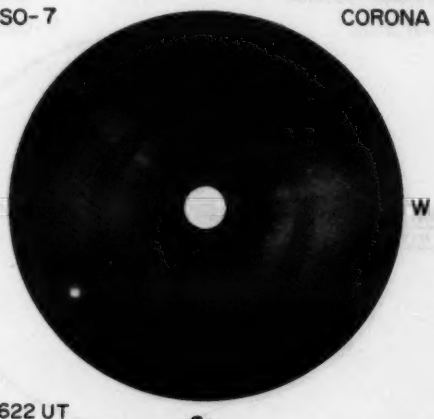
BOULDER Np SUNSPOTS



CORONA
NO DATA

1516 UT

NRL Np WHITE-LIGHT CORONA
OSO-7

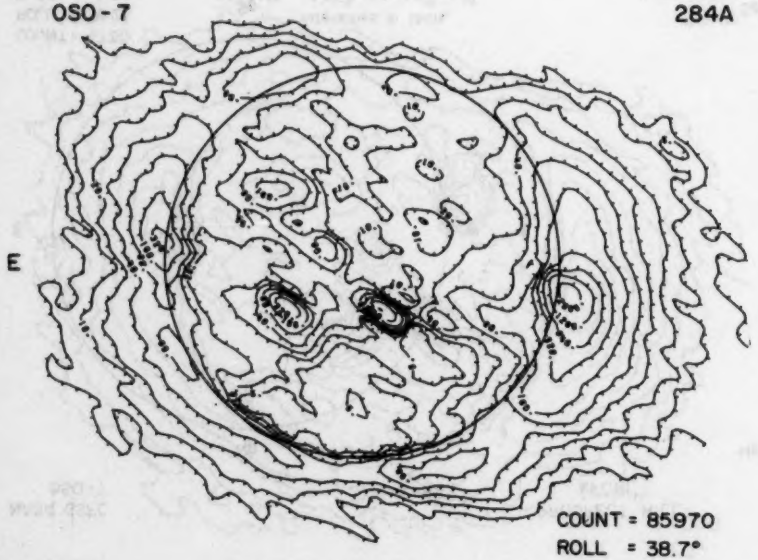


1622 UT

Np

NASA GSFC
OSO-7

FE XV
284A



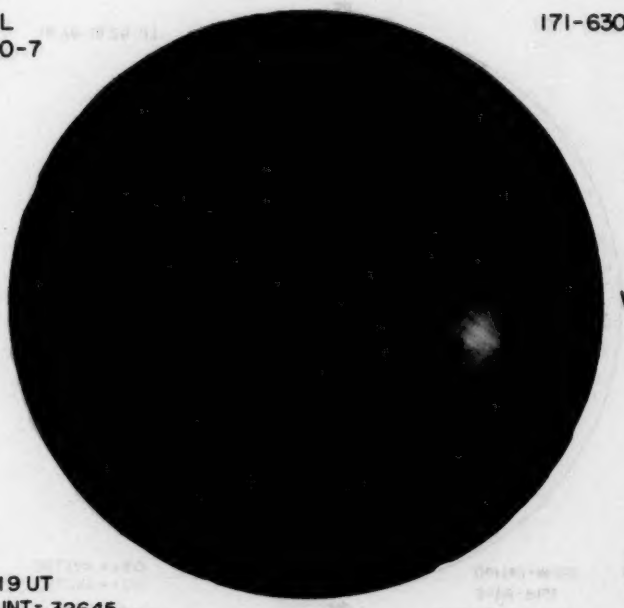
COUNT = 85970
ROLL = 38.7°
P-TH = -4.74

0915 UT

Np

NRL
OSO-7

171-630A



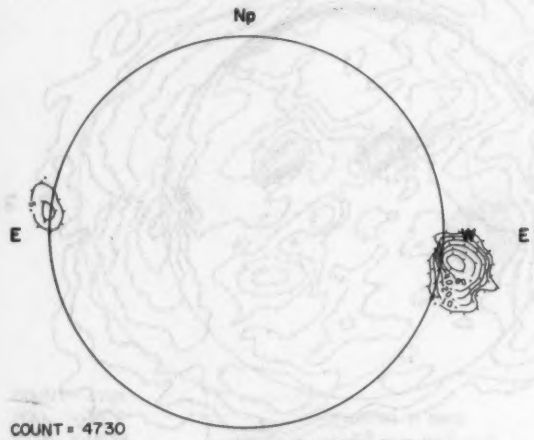
0919 UT
COUNT= 32645

61
Apr 73

APRIL 17, 1973 (P = -25.97, B_o = -5.43, L_o = 244.58)

NASA GSFC
OSO-7

X-RAY



COUNT = 4730
ROLL = 39.2°
P-TH = -4.82

0633 UT

Intensities in Units of 10^{-6} ergs cm^{-2} sec^{-1}

PROSPECT HILL
AFCRL

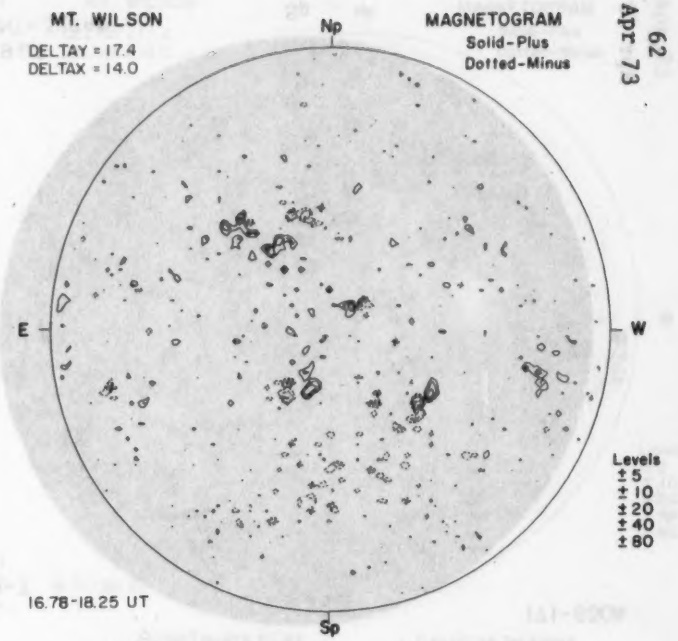
8.6 mm

Contours in Intervals of 200° K

MT. WILSON

DELTAY = 17.4
DELTAX = 14.0

MAGNETOGRAM
Solid-Plus
Dotted-Minus

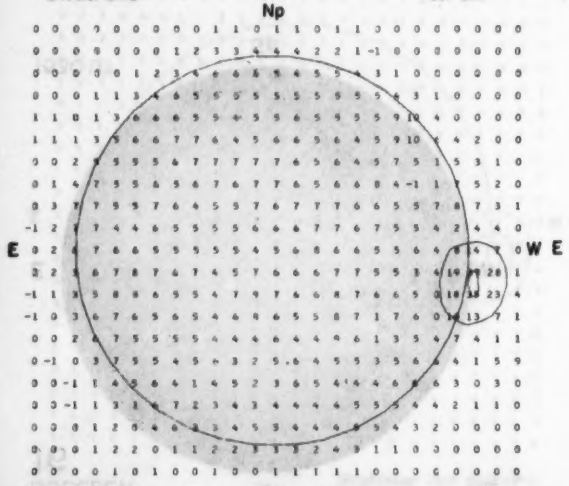


Levels
±5
±10
±20
±40
±80

16.78-18.25 UT

STANFORD

9.1 cm

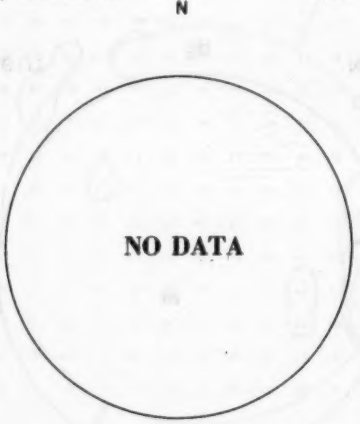


20-21 UT

Brightness Unit 5,000° K

FLEURS, AUSTRALIA

21 cm

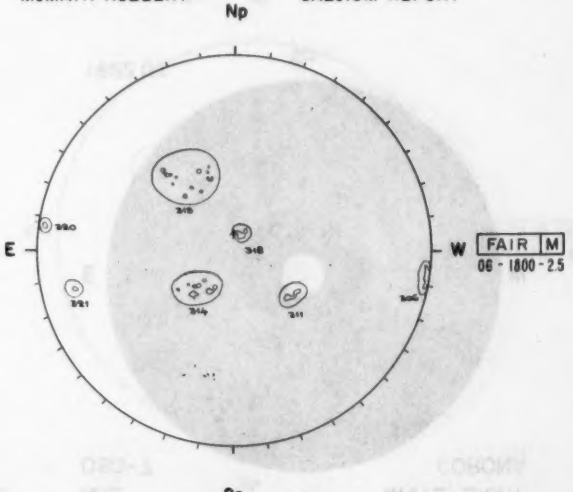


02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT

CALCIUM REPORT



1200 UT

RAMEY AFB

Hα

SAC PEAK

SUNSPOTS

Sp
20-21 UT
Brightness Unit 5,000° K

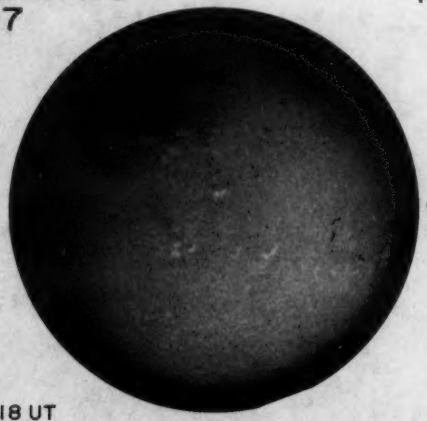
02-03 UT
Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

1200 UT

RAMEY AFB
17

Np

Hα



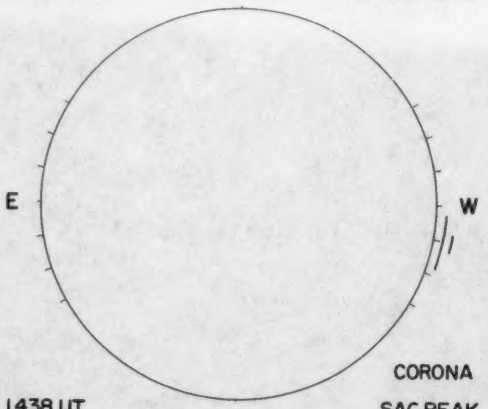
1118 UT

Sp

SAC PEAK

Np

SUNSPOTS



CORONA
SAC PEAK

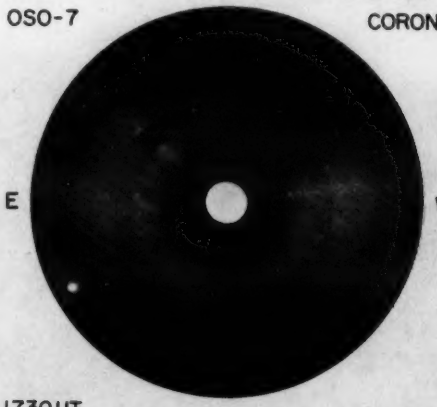
1438 UT

Sp

NRL
OSO-7

Np

WHITE-LIGHT
CORONA



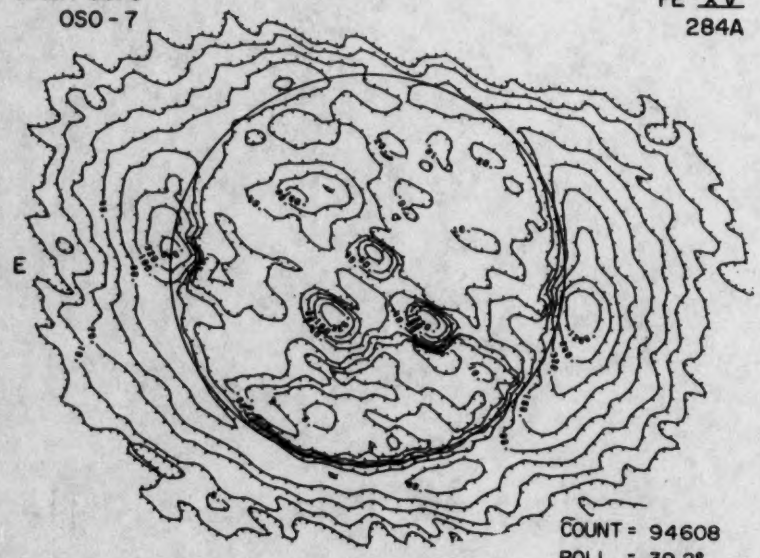
1730 UT

Sp

Np

NASA GSFC
OSO-7

FE XV
284A



COUNT = 94608
ROLL = 39.2°
P-TH = -4.82

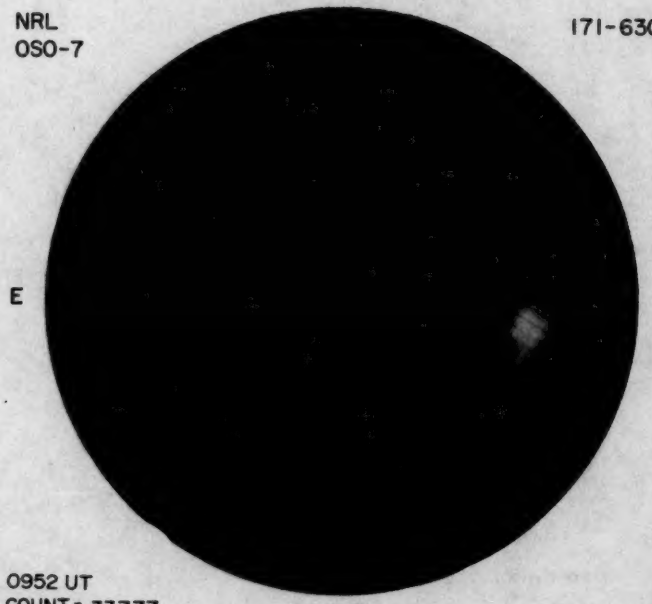
0633 UT

Sp

Np

NRL
OSO-7

171-630A



0952 UT
COUNT = 33777

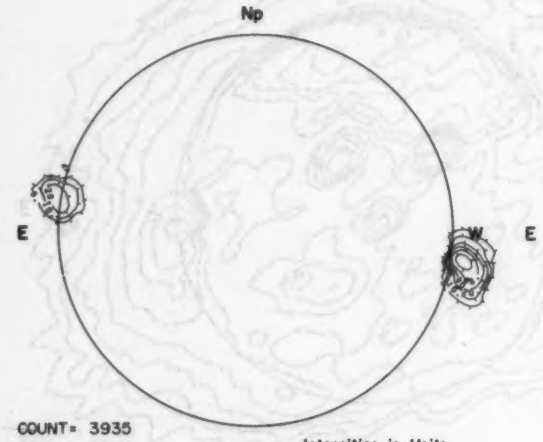
Sp

63
Apr 73

APRIL 18, 1973 (P=-25.89, B_o=-5.34, L_o=231.38)

NASA GSFC
OSO-7

X-RAY



COUNT= 3935
ROLL = 39.4°
P-TH = -4.91

0354 UT

Intensities in Units of 10^{-6} ergs cm^{-2} sec^{-1}

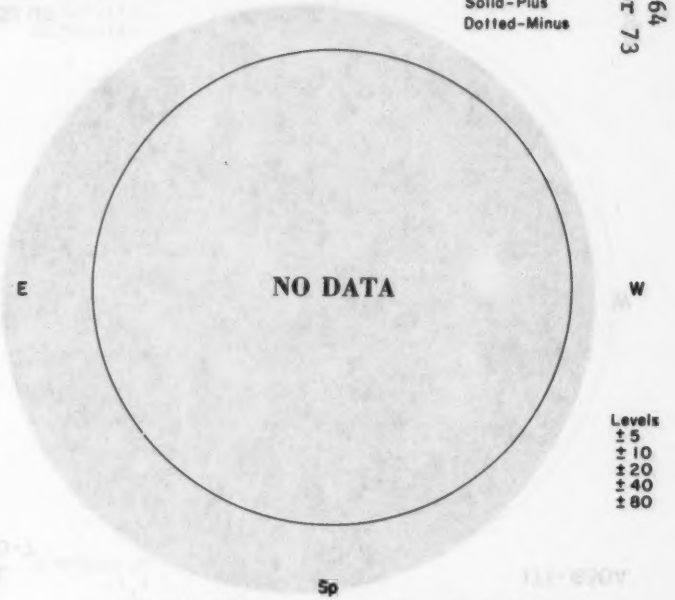
PROSPECT HILL
AFCRL

8.6 mm

Contours in Intervals of 200° K

MT. WILSON

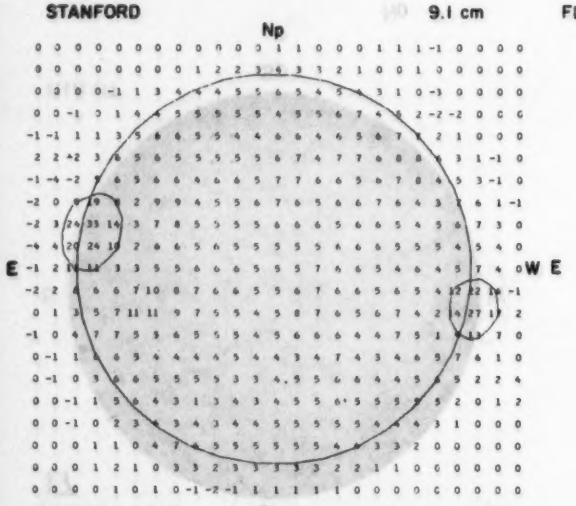
MAGNETOGRAM
Solid-Plus
Dotted-Minus



Levels
±5
±10
±20
±40
±80

STANFORD

9.1 cm



20-21 UT

Brightness Unit 5,000° K

FLEURS, AUSTRALIA

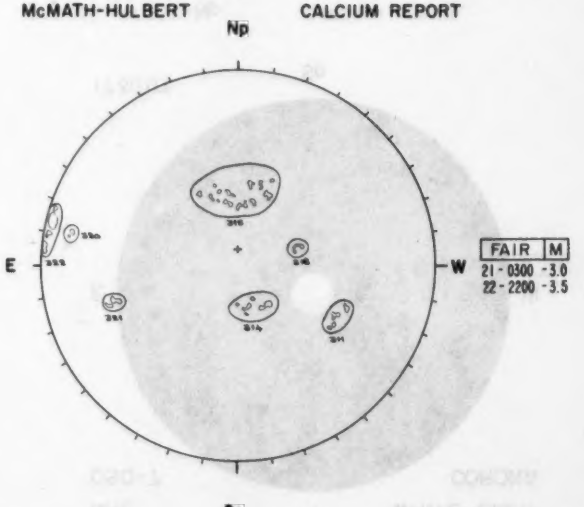
21 cm

02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT

CALCIUM REPORT



FAIR	M
21 - 0300	-3.0
22 - 2200	-3.5

1510 UT

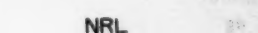
BOULDER

Hα

BOULDER

SUNSPOTS

NRL



WHITE-LIGHT

20-21 UT

02-03 UT Brightness Unit 1,700° K

1510 UT

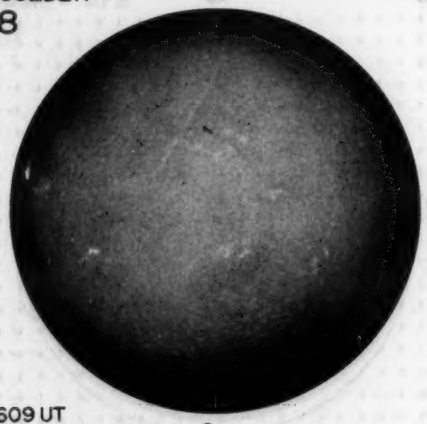
BOULDER
18

Np

Hα

E

W



1609 UT

Sp

BOULDER

Np

SUNSPOTS

322A

322B

E

W

CORONA

1412 UT

NO DATA

Sp

NRL
OSO-7

Np

WHITE-LIGHT
CORONA

E

W

1303 UT

Sp

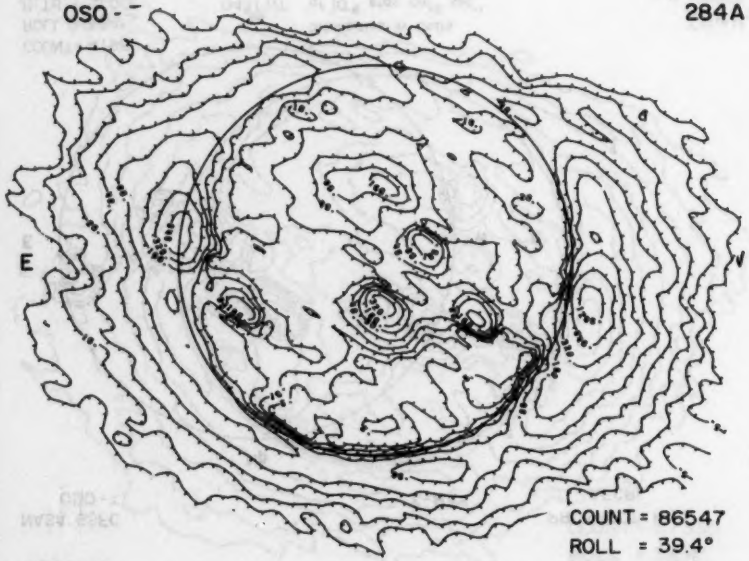
NASA GSFC
OSO-

Np

FE XV
284A

E

W



COUNT = 86547
ROLL = 39.4°
P-TH = -4.91

0354 UT

Sp

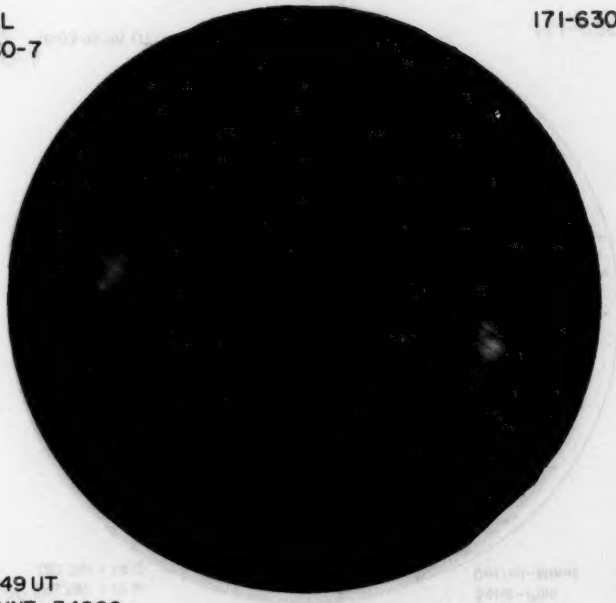
NRL
OSO-7

Np

171-630A

E

W



0849 UT
COUNT = 34200

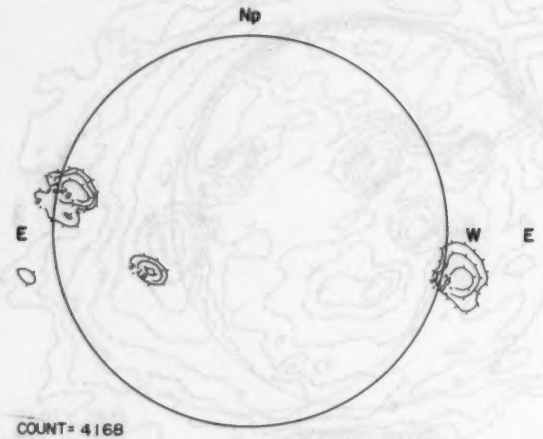
Sp

65
Apr 73

APRIL 19, 1973 (P=-25.80, B_o=-5.26, L_o=218.17)

NASA GSFC
OSO-7

X-RAY



COUNT= 4168
ROLL = 394°
P-TH = -5.00

0431 UT

Intensities in Units of 10^{-6} ergs cm^{-2} sec^{-1}

PROSPECT HILL
AFCRL

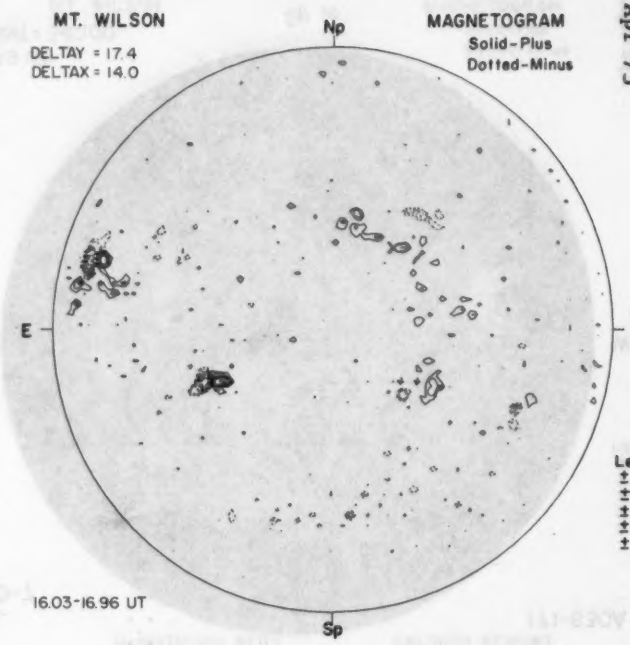
8.6 mm

Contours in Intervals of 200° K

MT. WILSON

DELTAY = 17.4
DELTAX = 14.0

MAGNETOGRAM
Solid-Plus
Dotted-Minus

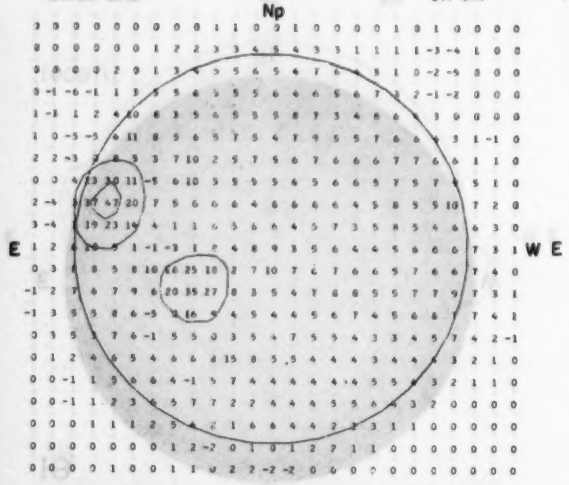


Levels
±5
±10
±20
±40
±80

16.03-16.96 UT

STANFORD

9.1 cm



20-21 UT

Brightness Unit 5,000° K

FLEURS, AUSTRALIA

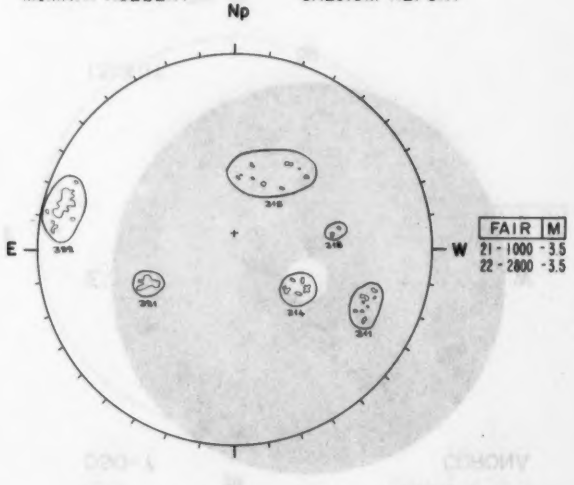
21 cm

02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT

CALCIUM REPORT



1515 UT

RAMEY AFB

Np

Hα

CANARY IS.

Np

SUNSPOTS

NRL

Np

WHITE-LIGHT

20-21 UT

Brightness Unit 5,000° K

02-03 UT

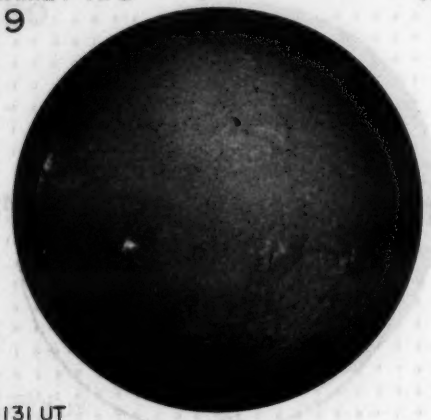
Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

1515 UT

RAMEY AFB
19

Np

Hα

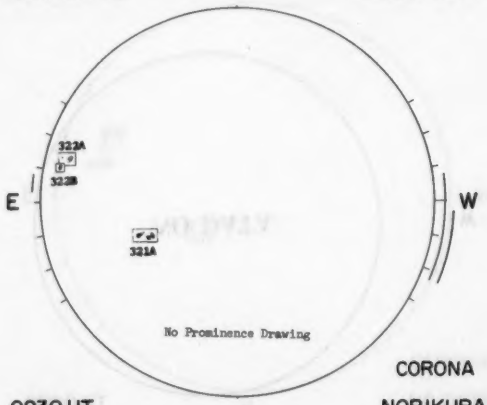


1131 UT

CANARY IS.

Np

SUNSPOTS



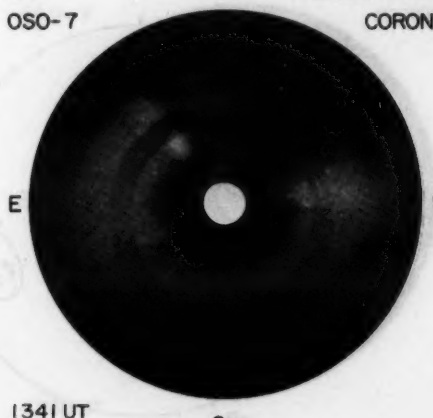
CORONA
NORIKURA

0930 UT

NRL
OSO-7

Np

WHITE-LIGHT
CORONA

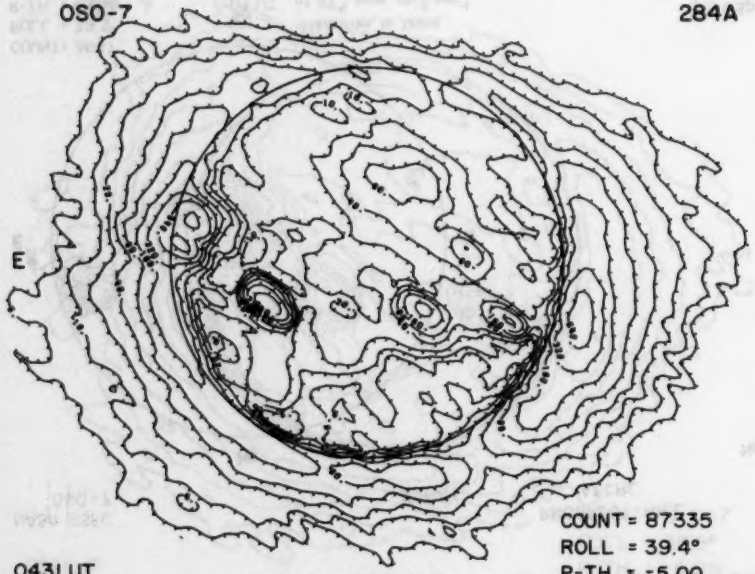


1341 UT

Np

NASA GSFC
OSO-7

FE XV
284A



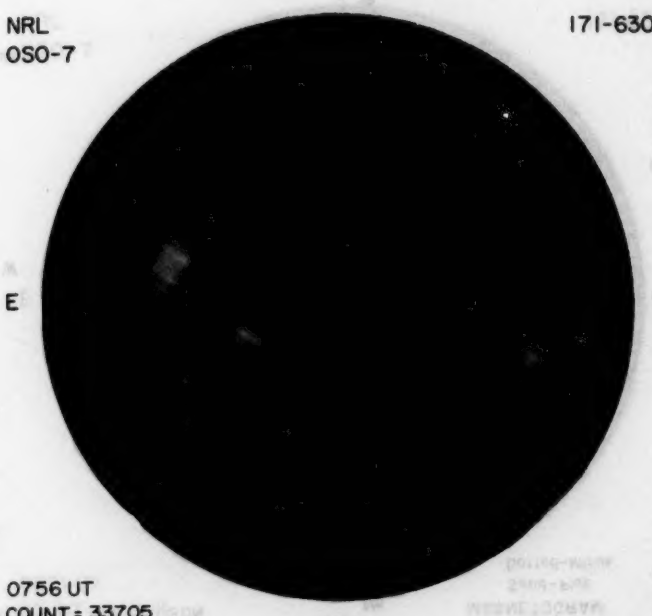
COUNT = 87335
ROLL = 39.4°
P-TH = -5.00

0431 UT

Np

NRL
OSO-7

171-630A

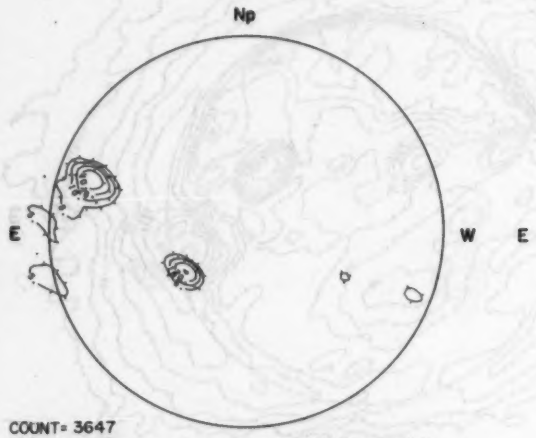


0756 UT
COUNT = 33705

67
Apr 73

APRIL 20, 1973 (P=-25.71, B_o=-5.17, L_o=204.96)

NASA GSFC
OSO-7
X-RAY



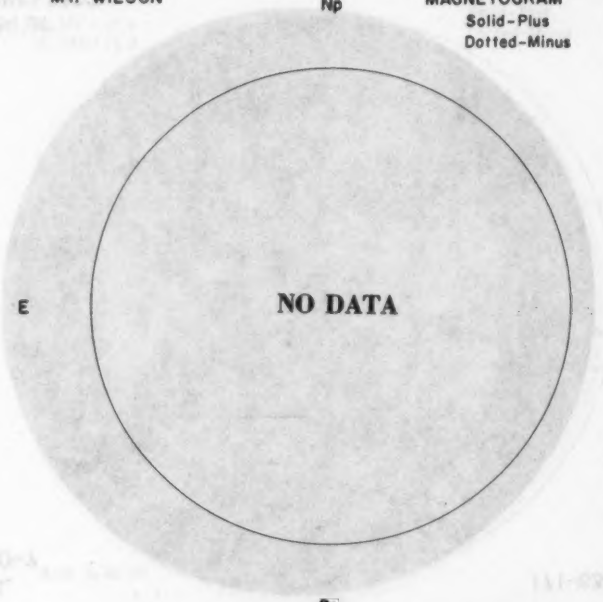
COUNT= 3647
ROLL = 39.5°
P-TH = -5.09

0511 UT Intensities in Units of 10^{-6} ergs cm^{-2} sec^{-1}

PROSPECT HILL
AFCRL
8.6 mm

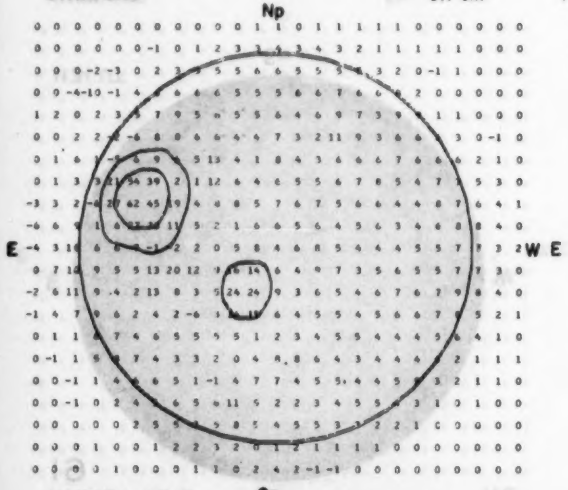
Contours in Intervals of 200° K

MT. WILSON
MAGNETOGRAM
Solid-Plus
Dotted-Minus



Levels
±5
±10
±20
±40
±80

STANFORD
9.1 cm

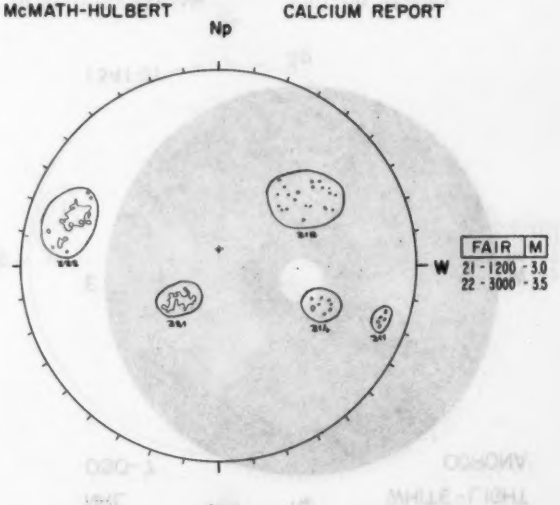


20-21 UT Brightness Unit 5,000° K

FLEURS, AUSTRALIA
21 cm

02-03 UT Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT
CALCIUM REPORT



1610UT

BOULDER
Hα

CANARY IS.

SUNSPOTS

NRL

WHITE-LIGHT

20-21 UT
Brightness Unit 5,000° K

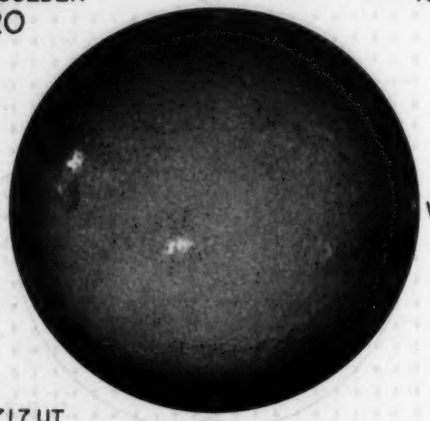
02-03 UT
Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

1610UT

BOULDER
20

Np

Hα



E

W

1717 UT

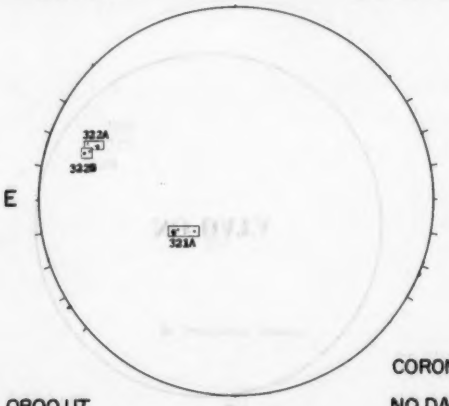
Sp

Np

CANARY IS.

Np

SUNSPOTS



E

W

CORONA

0800 UT

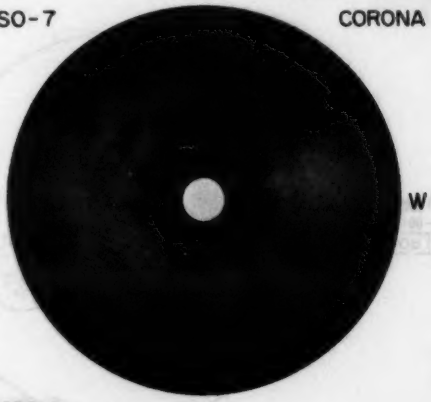
Sp

NO DATA

NRL
OSO-7

Np

WHITE-LIGHT
CORONA



E

W

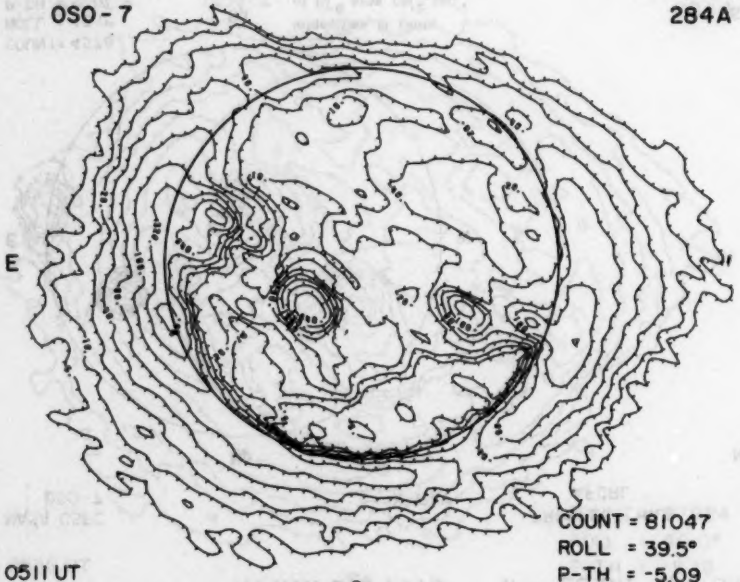
1238 UT

Sp

Np

NASA GSFC
OSO-7

FE XV
284A



E

COUNT = 81047
ROLL = 39.5°
P-TH = -5.09

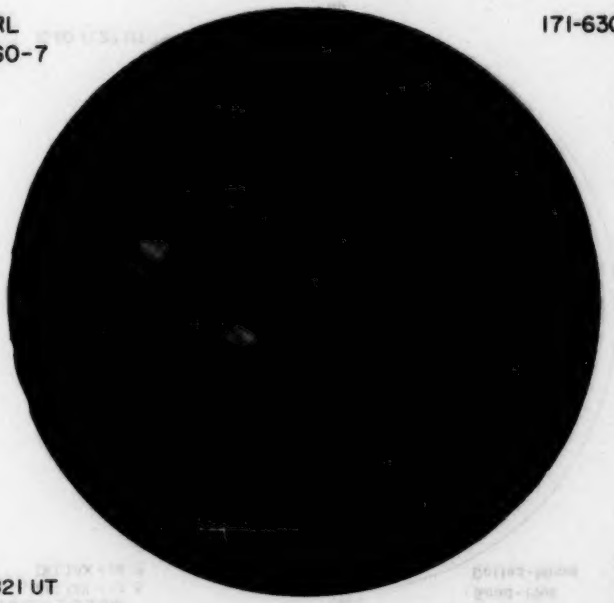
0511 UT

Sp

NRL
OSO-7

Np

171-630A



E

W

0821 UT
COUNT = 34615

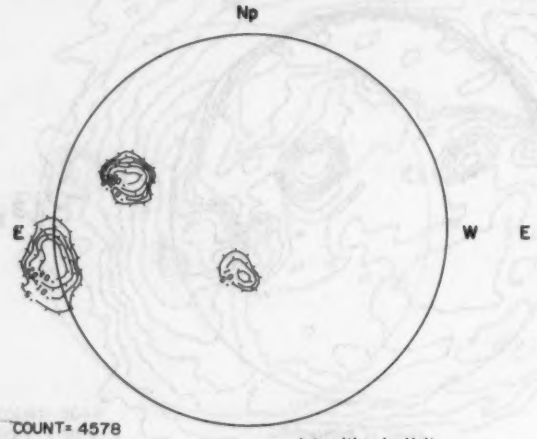
Sp

69
Apr 73

APRIL 21, 1973 (P=-25.61, B_o=-5.09, L_o=191.75)

NASA GSFC
OSO-7

X-RAY



COUNT= 4578
ROLL = 40.0°
P-TH = -5.18

0536 UT

Intensities in Units of 10^{-6} ergs cm^{-2} sec^{-1}

PROSPECT HILL
AFCRL

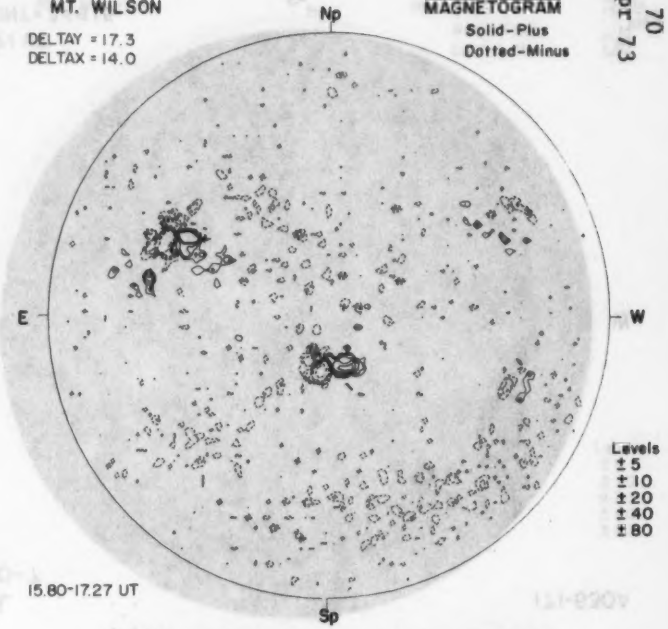
8.6 mm

Contours in Intervals of 200° K

MT. WILSON

DELTAY = 17.3
DELTAX = 14.0

MAGNETOGRAM
Solid-Plus
Dotted-Minus

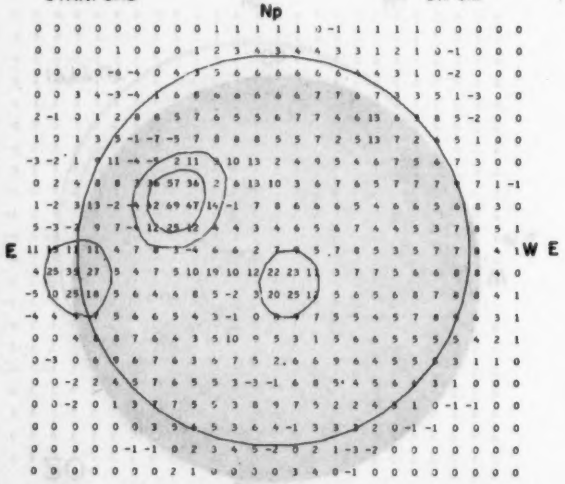


Levels
±5
±10
±20
±40
±80

15.80-17.27 UT

STANFORD

9.1 cm



20-21 UT

Brightness Unit 5,000° K

FLEURS, AUSTRALIA

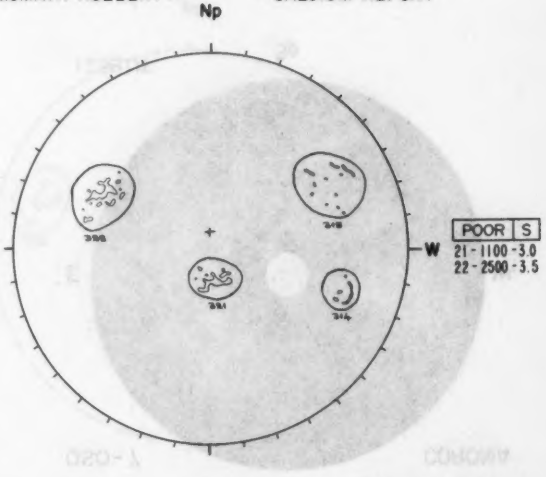
21 cm

02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT

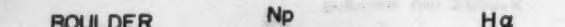
CALCIUM REPORT



1600 UT

BOULDER

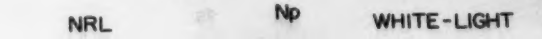
Hα



CANARY IS.

SUNSPOTS

NRL



WHITE-LIGHT

20-21 UT
Brightness Unit 5,000° K

02-03 UT
Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

1600 UT

BOULDER
21

Np

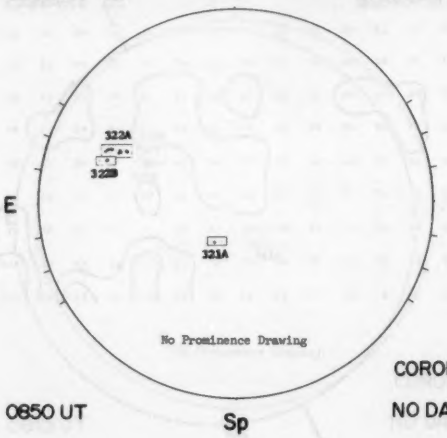
Hα

1618 UT

CANARY IS.

Np

SUNSPOTS



CORONA

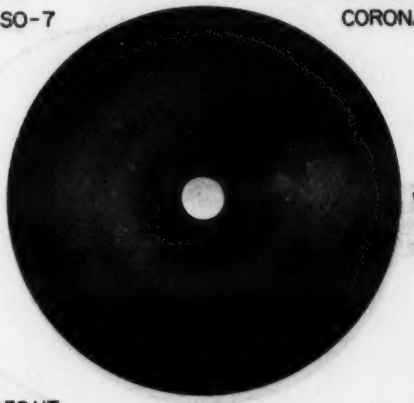
NO DATA

0850 UT

NRL
OSO-7

Np

WHITE-LIGHT
CORONA

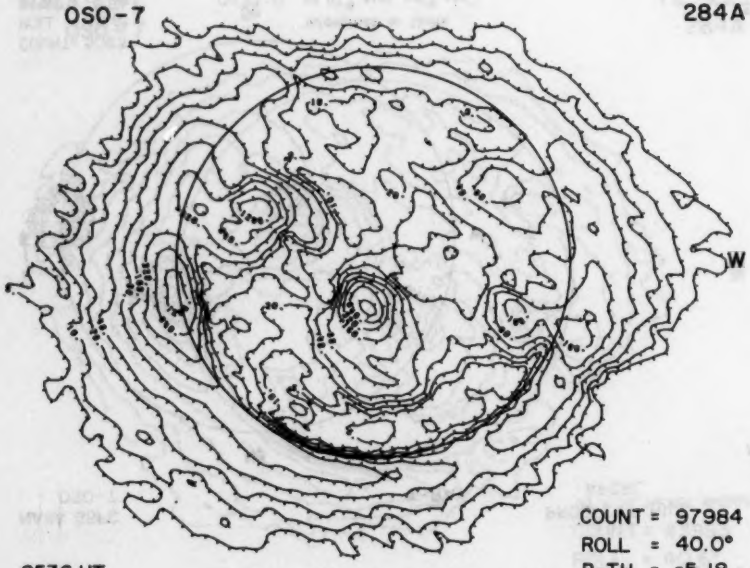


1132 UT

Np

NASA GSFC
OSO-7

FE XV
284A



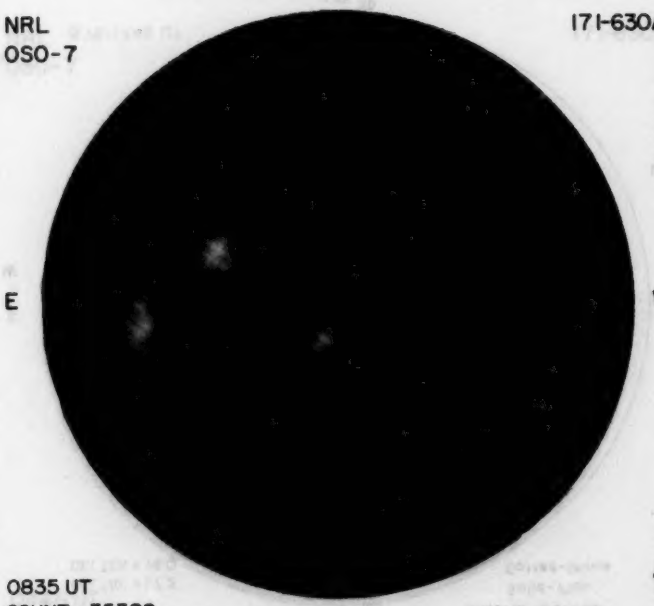
COUNT = 97984
ROLL = 40.0°
P-TH = -5.18

0536 UT

Np

NRL
OSO-7

171-630A

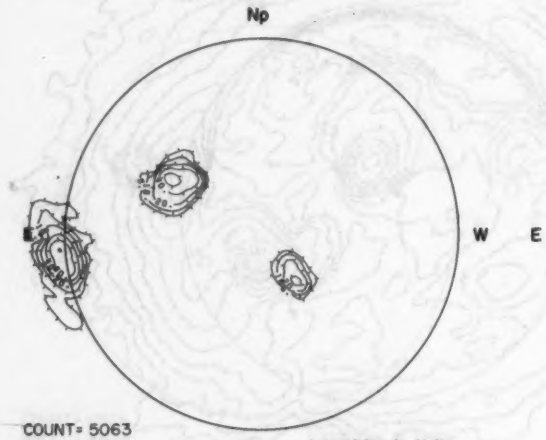


0835 UT
COUNT = 35389

71
Apr 73

APRIL 22, 1973 (P=-25.50, B_o=-5.00, L_o=178.54)

NASA GSFC
OSO-7
X-RAY

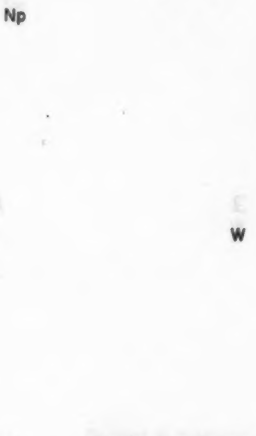


COUNT= 5063
ROLL = 40.6°
P-TH = -5.26

Intensities in Units of 10^{-6} ergs cm^{-2} sec^{-1}

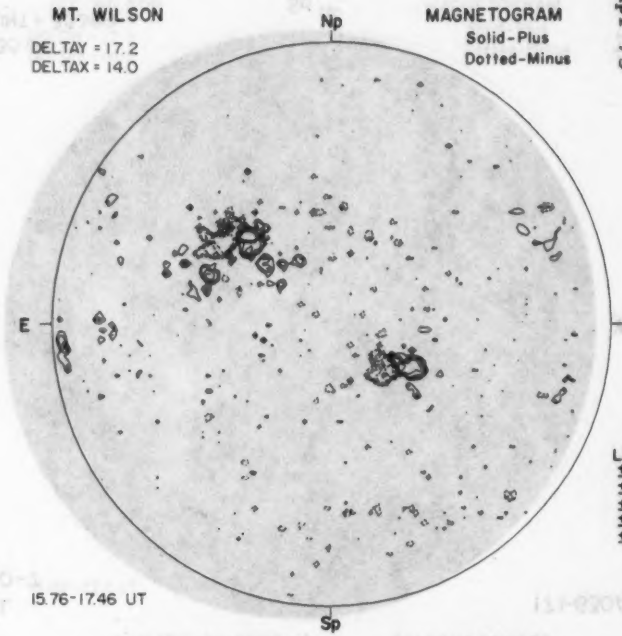
0433 UT

PROSPECT HILL
AFCRL
8.6 mm



Contours in Intervals of 200° K

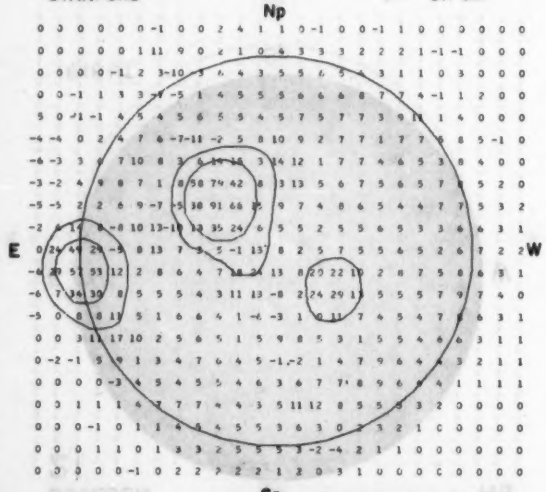
MT. WILSON
DELTAY = 17.2
DELTAX = 14.0
MAGNETOGRAM
Solid-Plus
Dotted-Minus



Levels
±5
±10
±20
±40
±80

15.76-17.46 UT

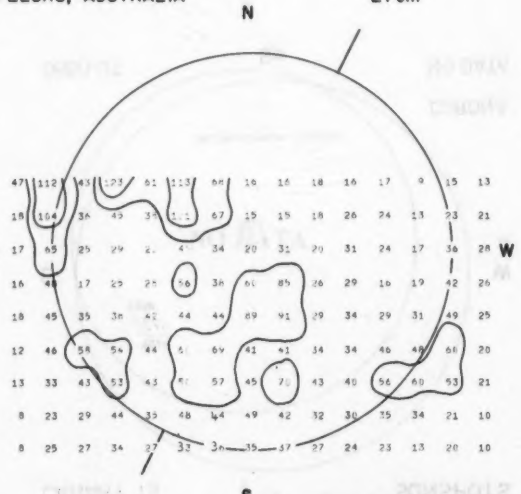
STANFORD
9.1 cm



Brightness Unit 5,000° K

20-21 UT

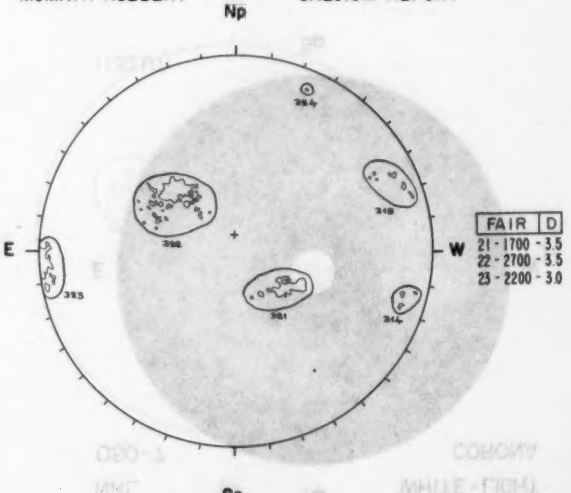
FLEURS, AUSTRALIA
21 cm



Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

02-03 UT

McMATH-HULBERT
CALCIUM REPORT



2000 UT

BOULDER
H-α

CANARY IS.

SUNSPOTS

NRL

WHITE-LIGHT

20-21 UT

Brightness Unit 3,000° K

02-03 UT

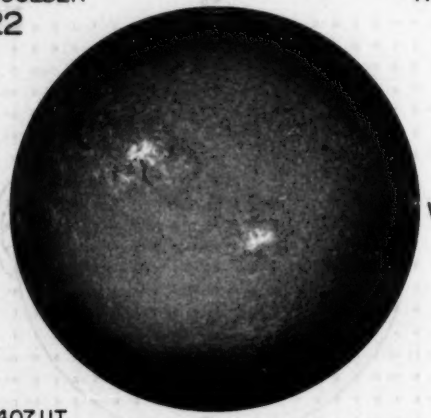
Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

2000 UT

BOULDER
22

Np

Hα

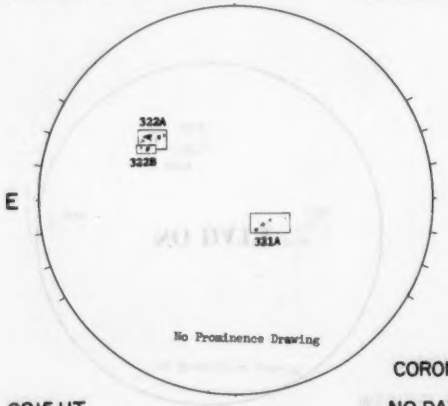


1407 UT

CANARY IS.

Np

SUNSPOTS



CORONA

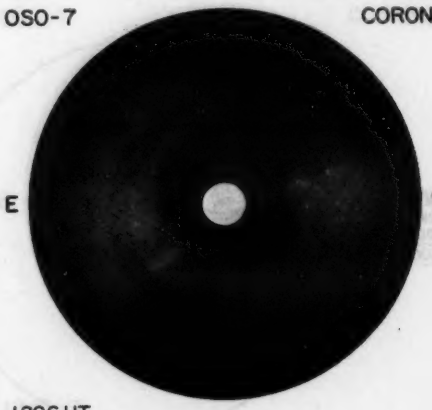
NO DATA

0815 UT

NRL
OSO-7

Np

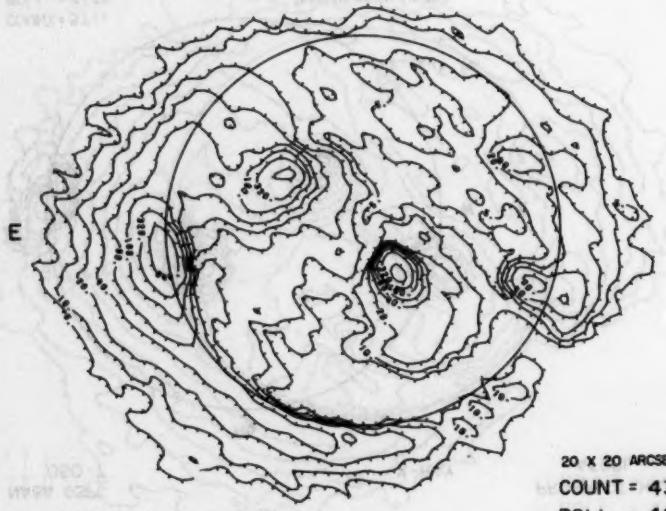
WHITE-LIGHT
CORONA



1206 UT

NASA GSFC
OSO-7

Np



0433 UT

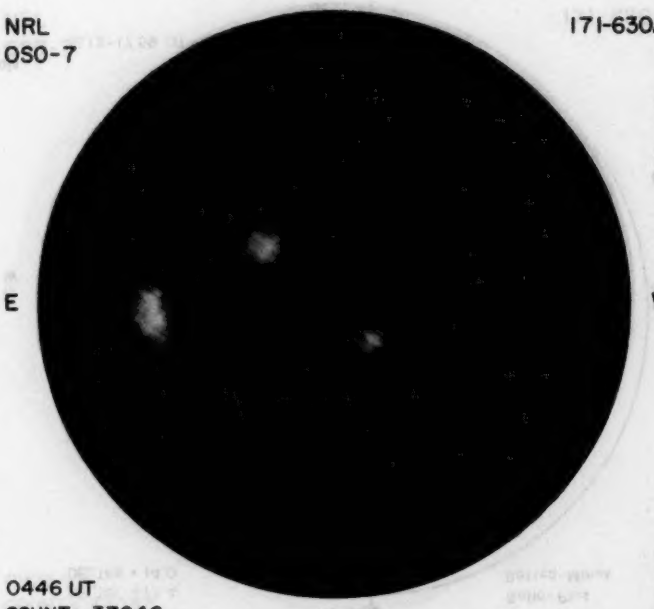
FE XV
284A

20 X 20 ARCSEC APERTURE
COUNT = 43983
ROLL = 40.6°
P-TH = -5.26

NRL
OSO-7

Np

171-630A

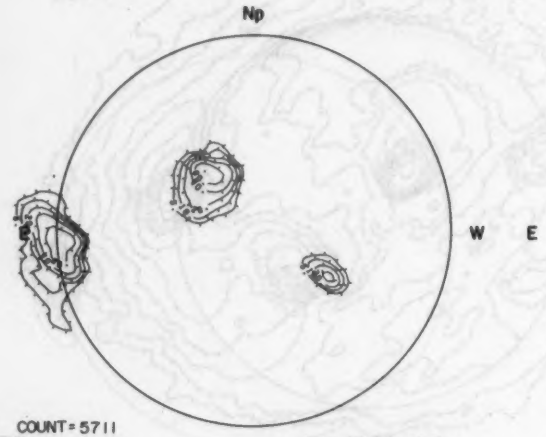


0446 UT
COUNT = 37046

73
Apr 73

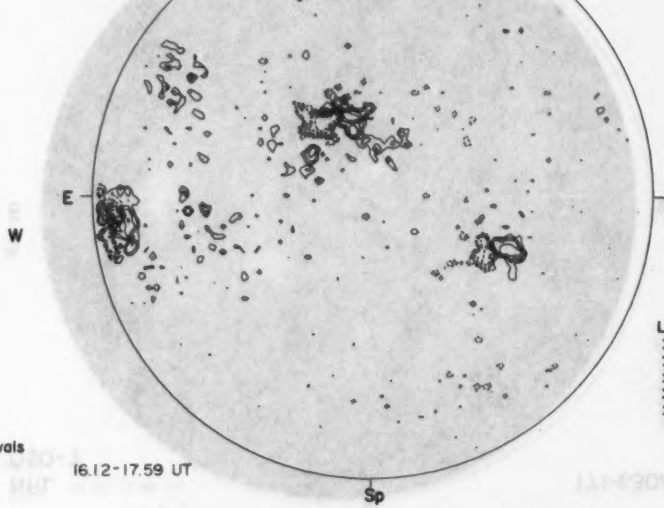
APRIL 23, 1973 (P=-25.39, B_o=-4.91, L_o=165.33)

NASA GSFC
OSO-7
X-RAY



COUNT=5711
ROLL =41.5°
P-TH =-5.34
0332 UT
Intensities in Units of 10^{-6} ergs cm^{-2} sec^{-1}

PROSPECT HILL
AFCRL
8.6 mm

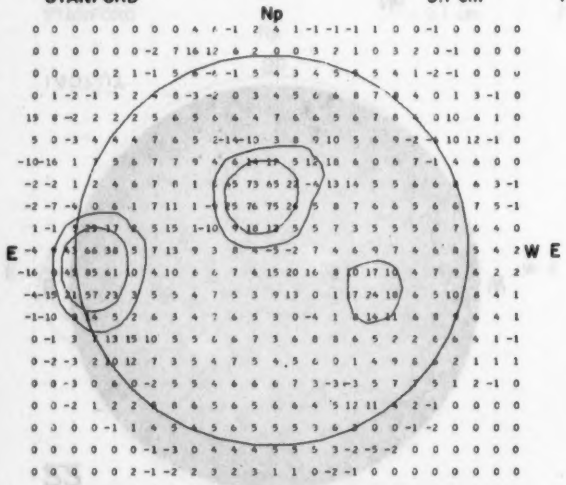


Contours in Intervals of 200° K

MT. WILSON
DELTAY = 17.4
DELTAX = 14.0
MAGNETOGRAM
Solid-Plus
Dotted-Minus

Levels
±5
±10
±20
±40
±80
16.12-17.59 UT

STANFORD
9.1 cm

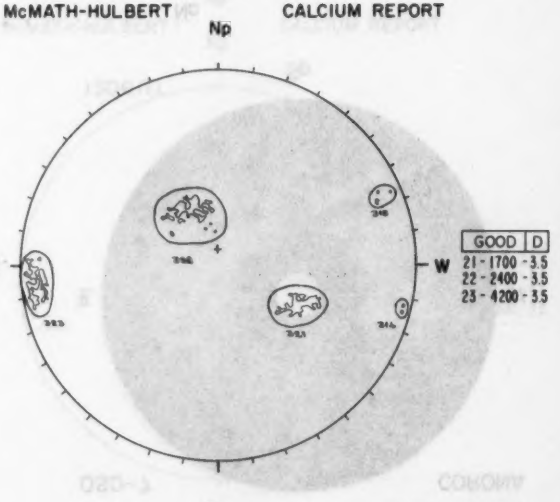


20-21 UT
Brightness Unit 5,000° K

FLEURS, AUSTRALIA
21 cm

02-03 UT
Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT
CALCIUM REPORT



1300 UT

BOULDER
H α

CANARY IS.

SUNSPOTS

NRL

WHITE-LIGHT

BOULDER
23

Np

Hα

E

NO DATA

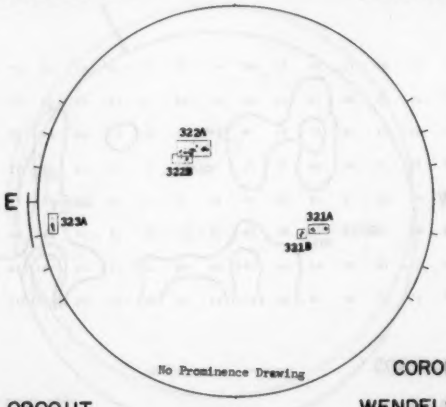
W

Sp

CANARY IS.

Np

SUNSPOTS



0900 UT

CORONA

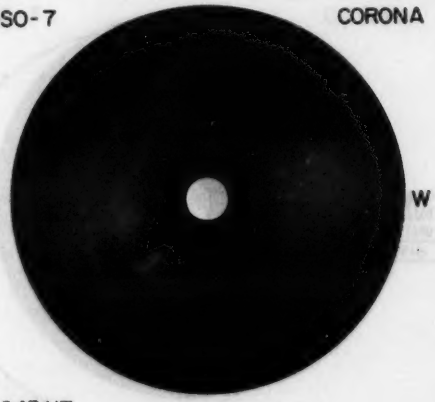
WENDELSTEIN

Sp

NRL
OSO-7

Np

WHITE-LIGHT
CORONA

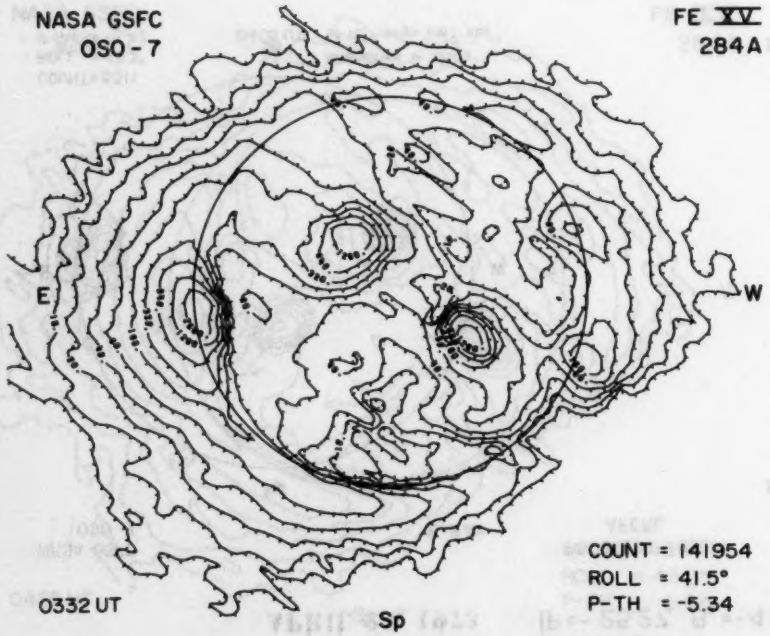


1243 UT

Sp

NASA GSFC
OSO-7

Np



0332 UT

Sp

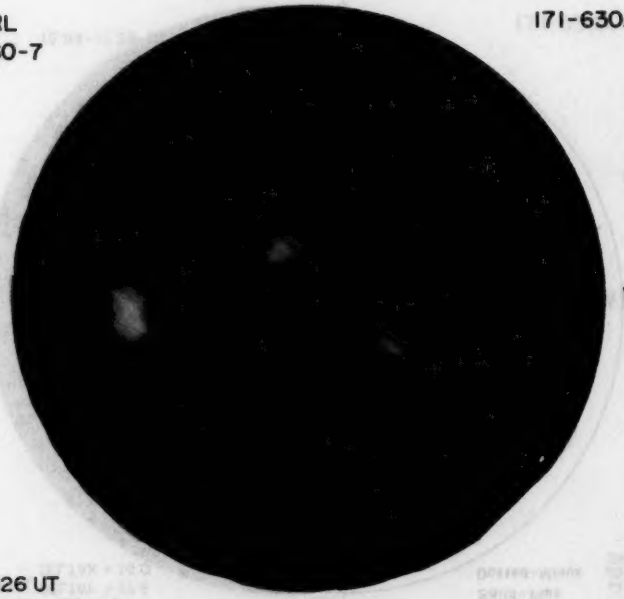
FE XV
284A

COUNT = 141954
ROLL = 41.5°
P-TH = -5.34

NRL
OSO-7

Np

171-630A



0826 UT
COUNT = 38037

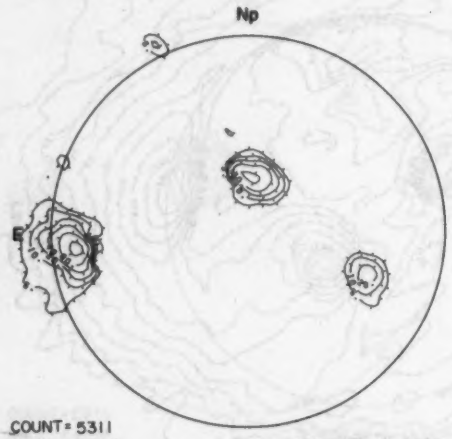
Sp

75
Apr 73

APRIL 24, 1973 (P=- 25.27, B_o=-4.82, L_o = 152.12)

76 Apr 73

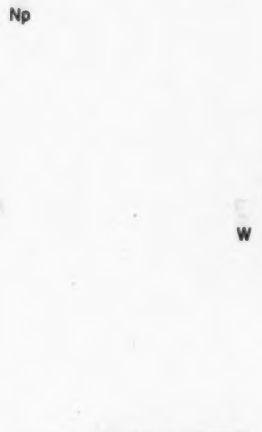
NASA GSFC
OSO-7
X-RAY



COUNT = 5311
ROLL = 43.3°
P-TH = -5.42
0405 UT

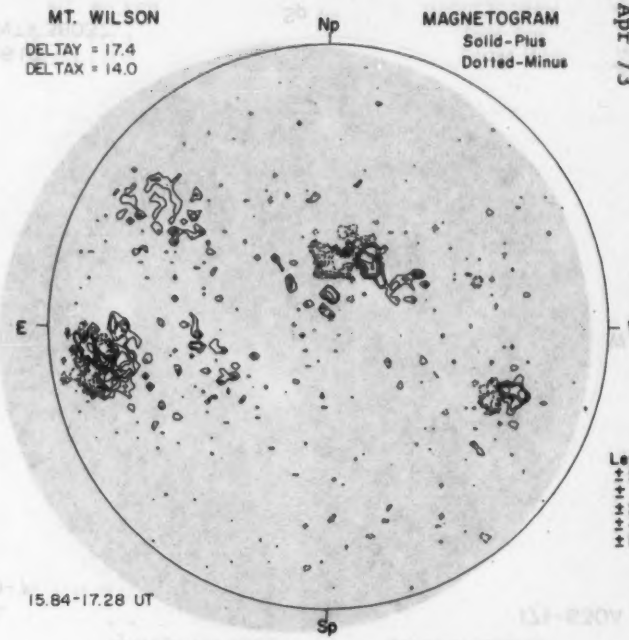
Intensities in Units of 10^{-6} ergs cm^{-2} sec^{-1}

PROSPECT HILL
AFCRL
8.6 mm



Contours in Intervals of 200° K

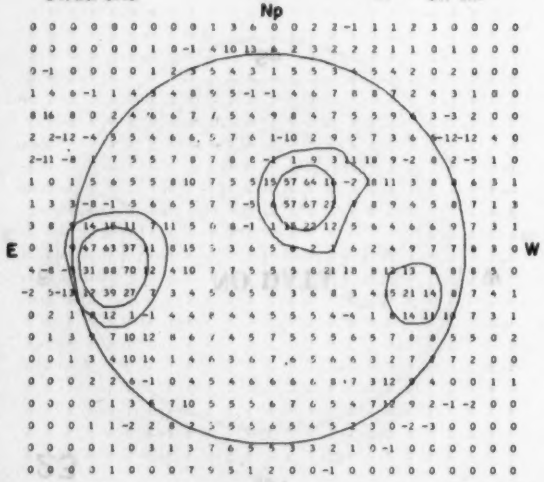
MT. WILSON
DELTAY = 17.4
DELTAX = 14.0
MAGNETOGRAM
Solid-Plus
Dotted-Minus



Levels
±5
±10
±20
±40
±80

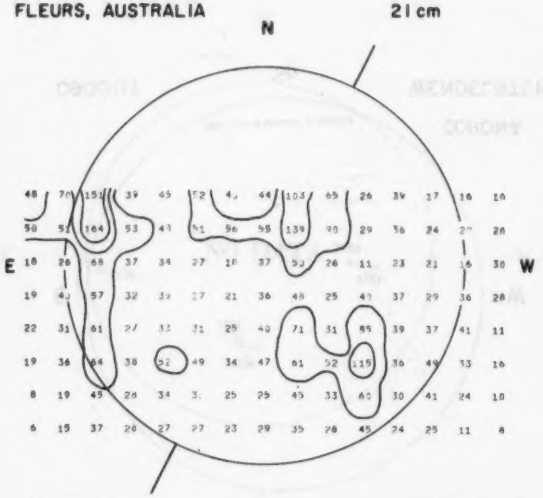
15.84-17.28 UT

STANFORD
9.1 cm



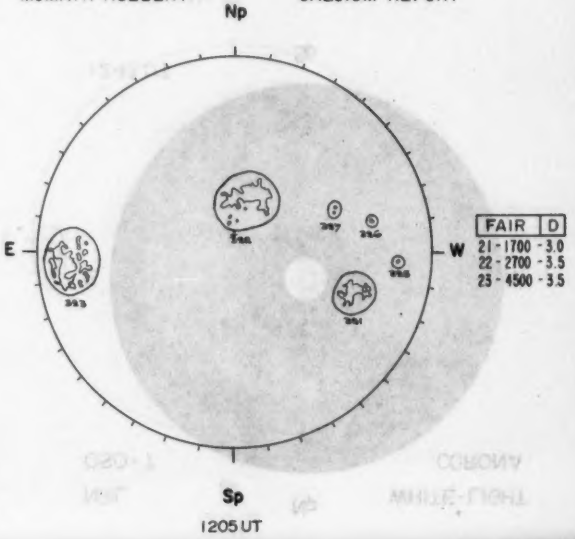
Brightness Unit 5,000° K
20-21 UT

FLEURS, AUSTRALIA
21 cm



Resolution 3 Minutes of Arc
Brightness Unit 1,700° K
02-03 UT

McMATH-HULBERT
CALCIUM REPORT



1205 UT

Np

Brightness Unit 5,000° K

20-21 UT

02-03 UT

Resolution 3 Minutes of Arc

Brightness Unit 1,700° K

1205 UT

BOULDER

24

Np

Hα

E

W

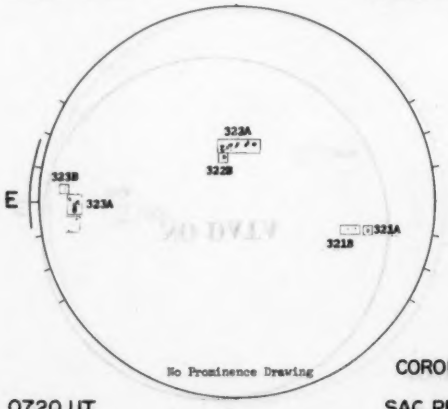
1648 UT

Sp

CANARY IS.

Np

SUNSPOTS



E

W

0720 UT

Sp

CORONA

SAC PEAK

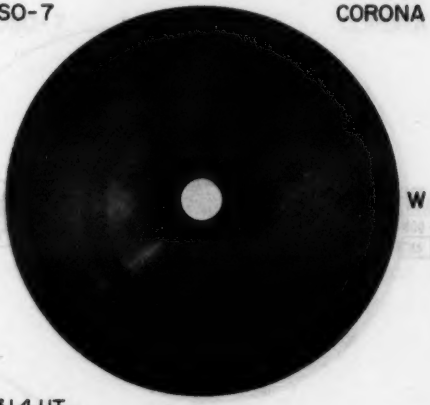
NRL

OSO-7

Np

WHITE-LIGHT

CORONA



E

W

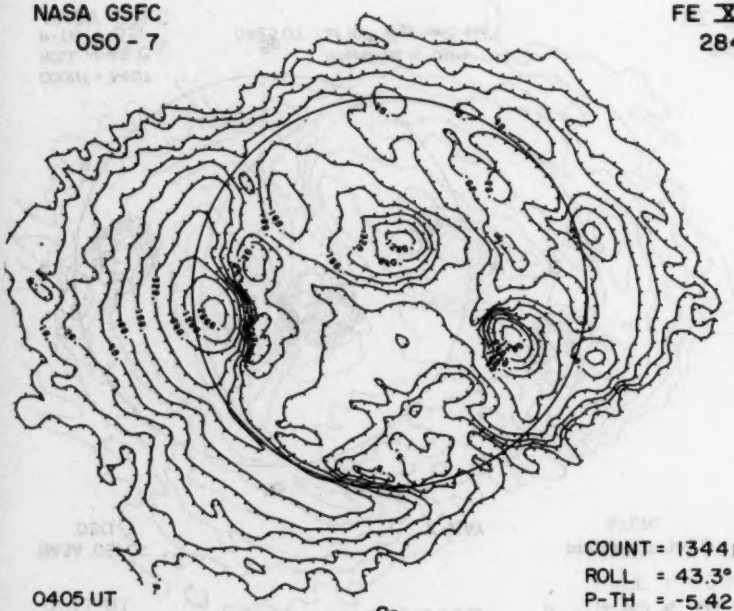
1314 UT

Sp

NASA GSFC

OSO - 7

Np



W

0405 UT

Sp

FE XV

284A

COUNT = 134415

ROLL = 43.3°

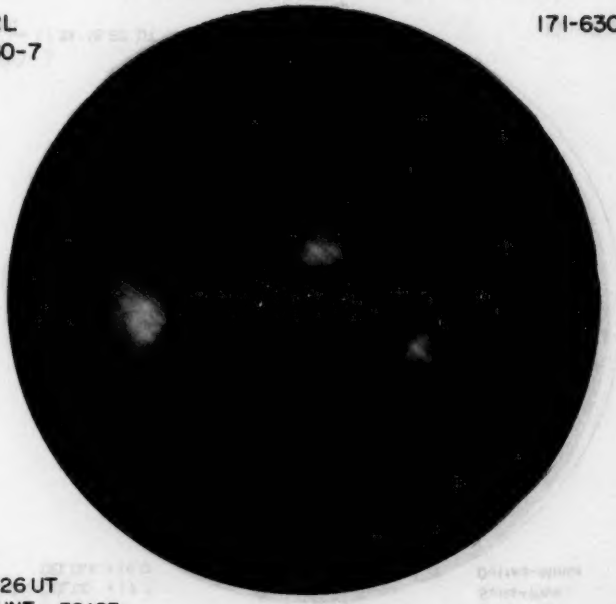
P-TH = -5.42

NRL

OSO-7

Np

171-630A



E

W

0726 UT

COUNT = 39183

Sp

77

Apr 73

APRIL 25, 1973 (P=- 25.14, B_o=-4.72, L_o=138.91)

Apr 73 78

NASA GSFC
OSO-7

X-RAY

COUNT = 3407
ROLL = 46.1°
P-TH = -5.51

0625 UT

Intensities in Units of 10^{-6} ergs cm^{-2} sec^{-1}

PROSPECT HILL
AFCRL

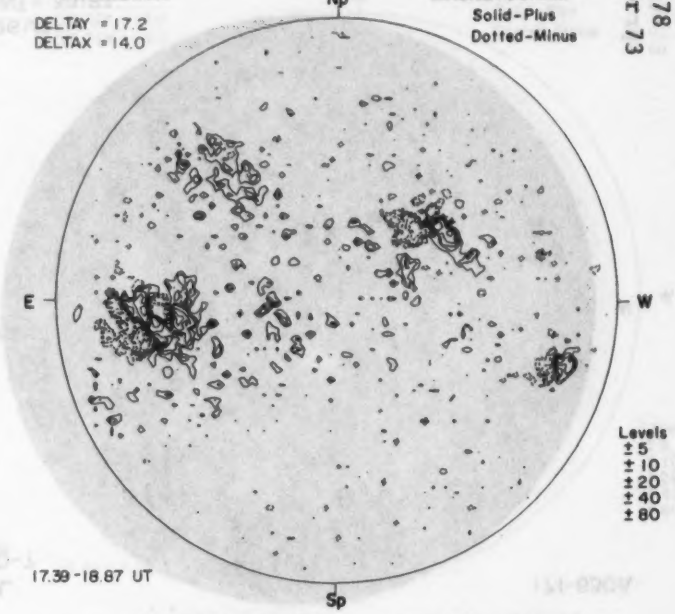
8.6 mm

Contours in Intervals of 200° K

MT. WILSON

DELTAY = 17.2
DELTAX = 14.0

MAGNETOGRAM
Solid-Plus
Dotted-Minus

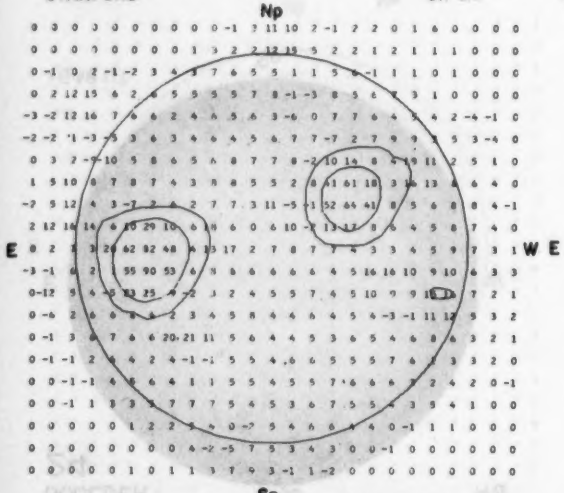


Levels
±5
±10
±20
±40
±80

17.39-18.87 UT

STANFORD

9.1 cm



20-21 UT

Brightness Unit 5,000° K

FLEURS, AUSTRALIA

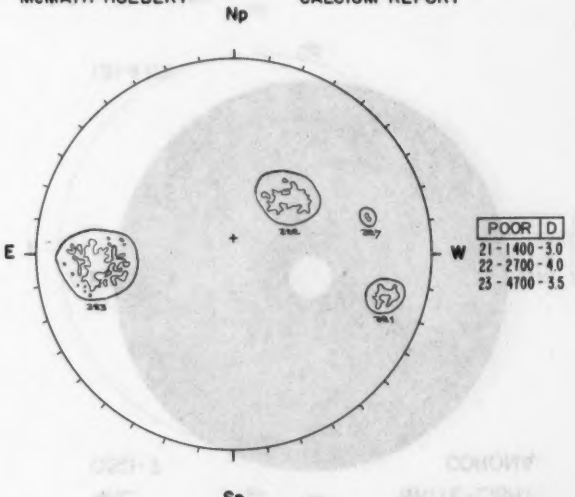
21 cm

02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT

CALCIUM REPORT



1225 UT

20-21 UT

02-03 UT Brightness Unit 1,700° K

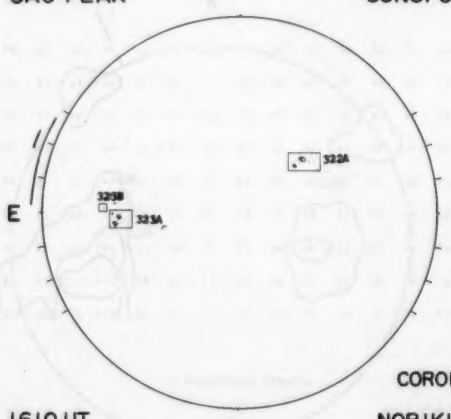
1225 UT

RAMEY AFB Np Hα

25

1236 UT Sp

SAC PEAK Np SUNSPOTS

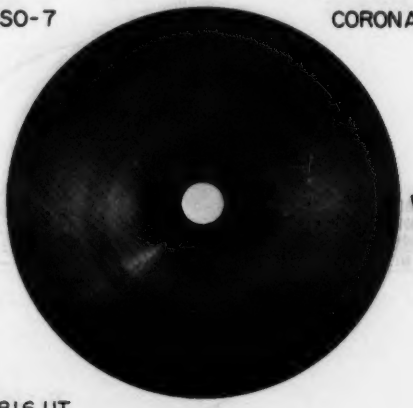


CORONA

1610 UT Sp NORIKURA

NRL Np WHITE - LIGHT

OSO-7 CORONA



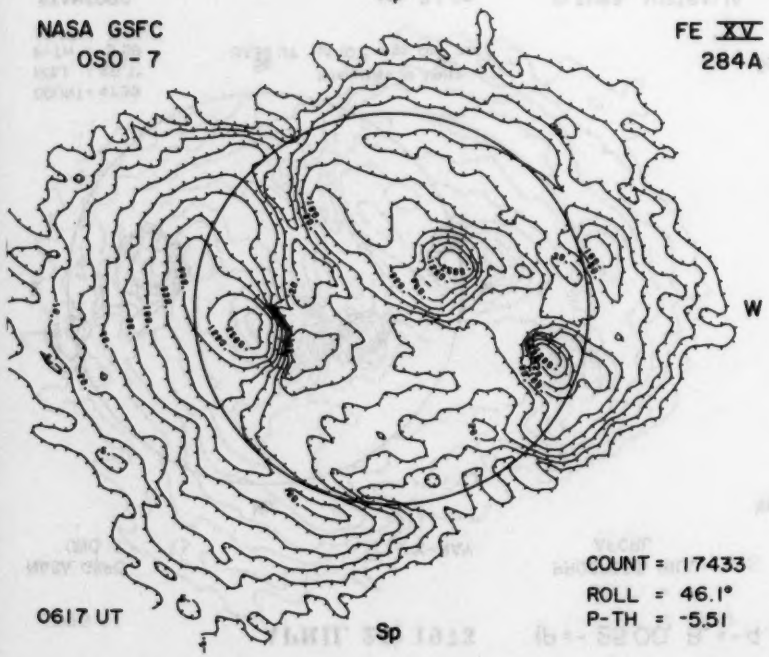
1816 UT Sp

NASA GSFC Np

OSO-7

FE XV

284A



COUNT = 17433

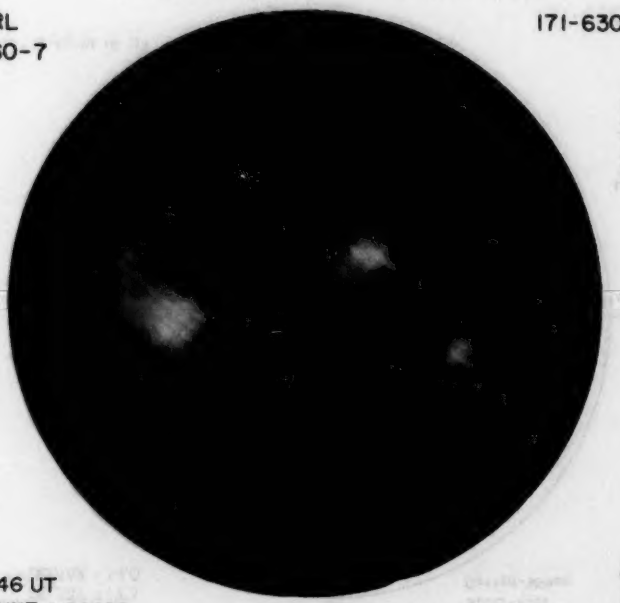
ROLL = 46.1°

P-TH = -5.51

0617 UT Sp

NRL Np 171-630A

OSO-7



1046 UT

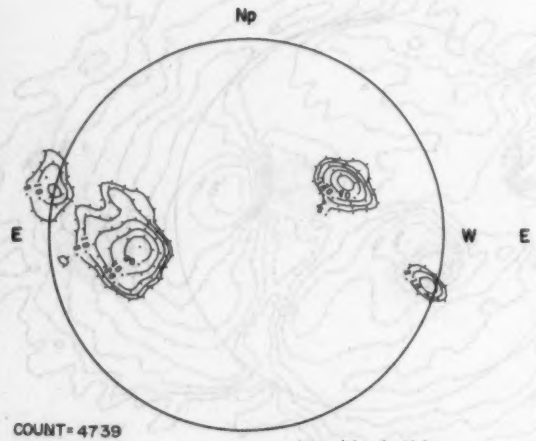
COUNT = 44480

Sp

79 Apr 73

APRIL 26, 1973 (P = -25.00, B_o = -4.63, L_o = 125.70)

NASA GSFC
OSO-7
X-RAY



COUNT = 4739
ROLL = 46.1°
P-TH = -5.58

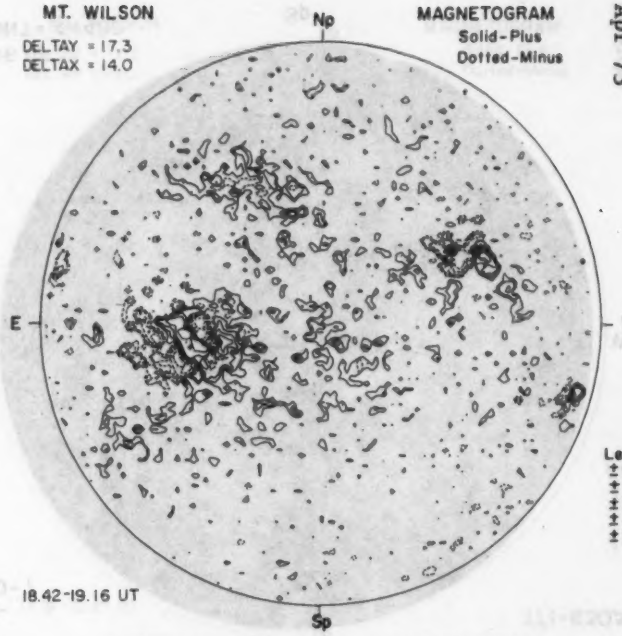
0339 UT

Intensities in Units of 10^{-6} ergs cm^{-2} sec^{-1}

PROSPECT HILL
AFCRL
8.6 mm

Contours in Intervals of 200° K

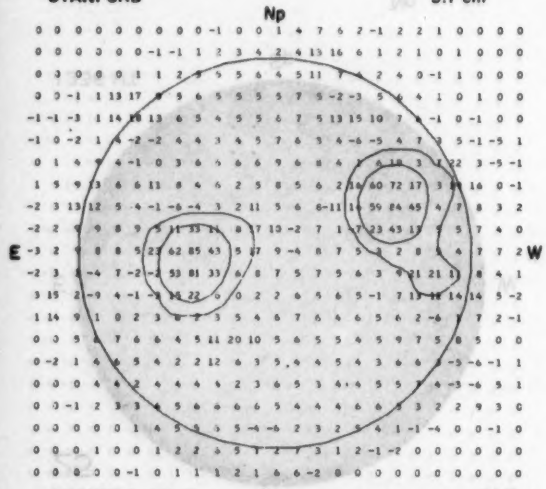
MT. WILSON
DELTAY = 17.3
DELTAX = 14.0
MAGNETOGRAM
Solid-Plus
Dotted-Minus



Levels
±5
±10
±20
±40
±80

18.42-19.16 UT

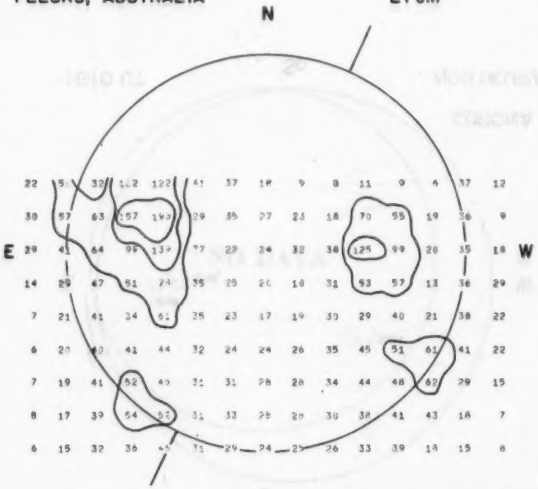
STANFORD
9.1 cm



20-21 UT

Brightness Unit 5,000° K

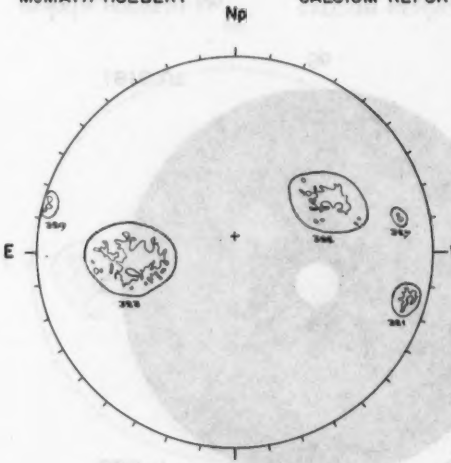
FLEURS, AUSTRALIA
21 cm



02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT

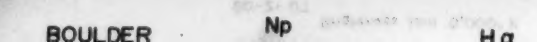


1150 UT

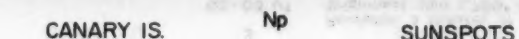
CALCIUM REPORT

FAIR	D
21 - 1500	2.5
22 - 2500	3.5
23 - 4700	3.0

BOULDER
H α



CANARY IS.



SUNSPOTS

NRL

WHITE-LIGHT

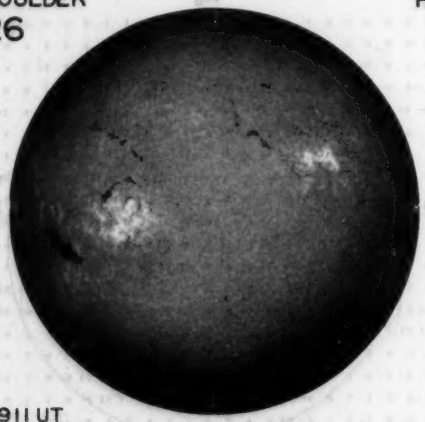
BOULDER
26

Np

Hα

E

W



1911 UT

Sp

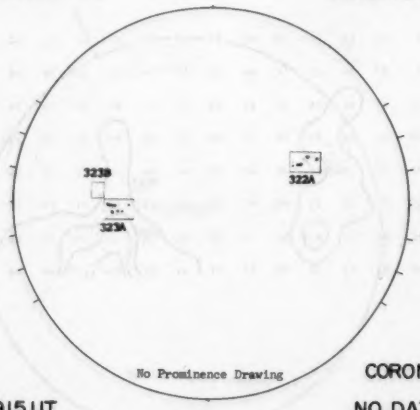
CANARY IS.

Np

SUNSPOTS

E

W



0915 UT

Sp

CORONA

NO DATA

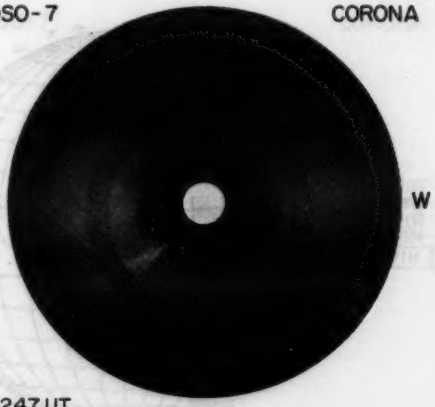
NRL
OSO-7

Np

WHITE-LIGHT
CORONA

E

W



1247 UT

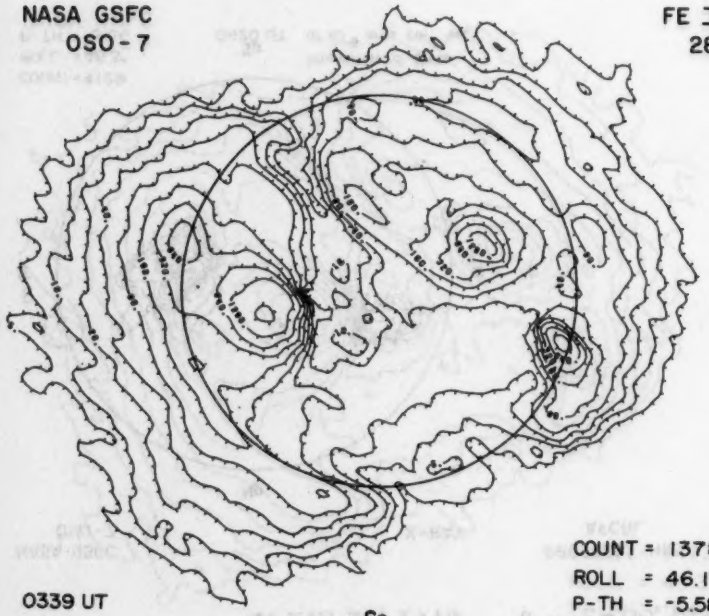
Sp

NASA GSFC
OSO-7

Np

FE XV
284A

W



COUNT = 137852
ROLL = 46.1°
P-TH = -5.58

0339 UT

Sp

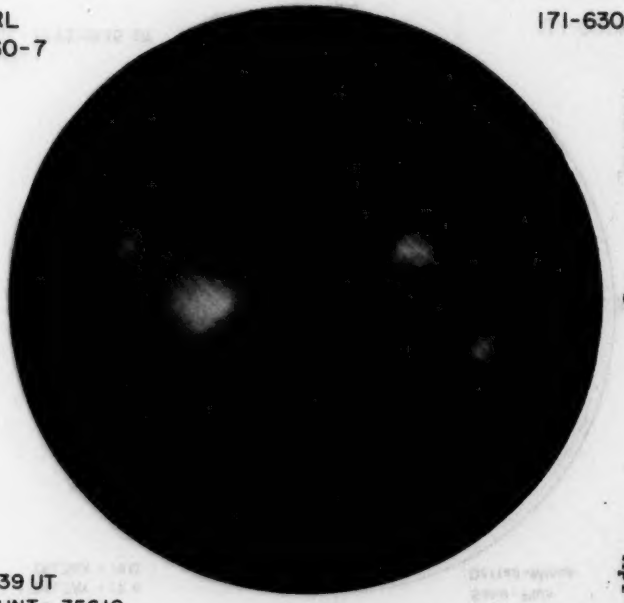
NRL
OSO-7

Np

171-630A

E

W



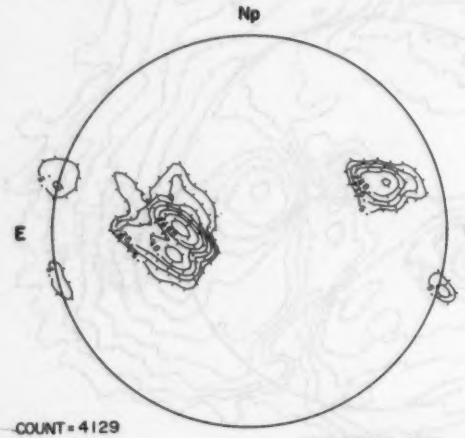
0839 UT
COUNT = 35618

Sp

81
Apr 73

APRIL 27, 1973 (P = -24.86, B_o = -4.54, L_o = 112.48)

NASA GSFC
OSO-7
X-RAY



COUNT = 4129
ROLL = 46.3°
P-TH = -5.66

0420 UT

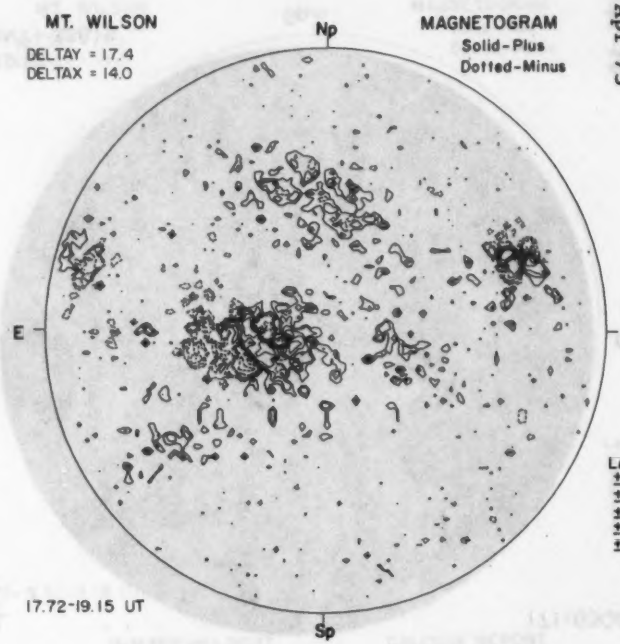
Intensities in Units of 10^{-6} ergs cm^{-2} sec^{-1}

PROSPECT HILL
AFCRL
8.6 mm

Contours in Intervals of 200° K

MT. WILSON
DELTAY = 17.4
DELTAX = 14.0

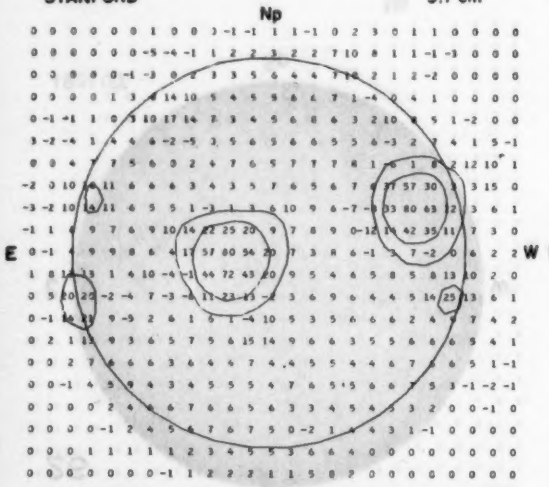
MAGNETOGRAM
Solid-Plus
Dotted-Minus



Levels
±5
±10
±20
±40
±80

17.72-19.15 UT

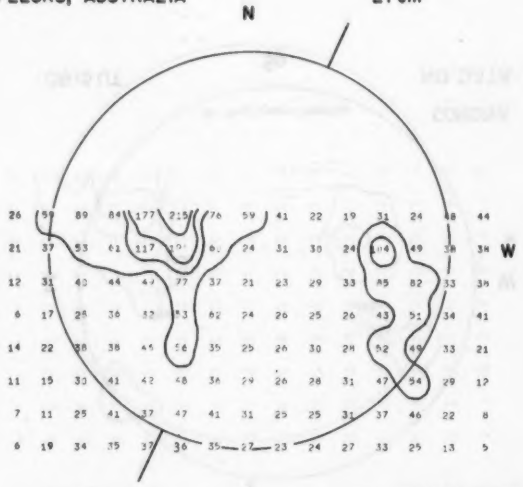
STANFORD
9.1 cm



20-21 UT

Brightness Unit 5,000° K

FLEURS, AUSTRALIA
21 cm

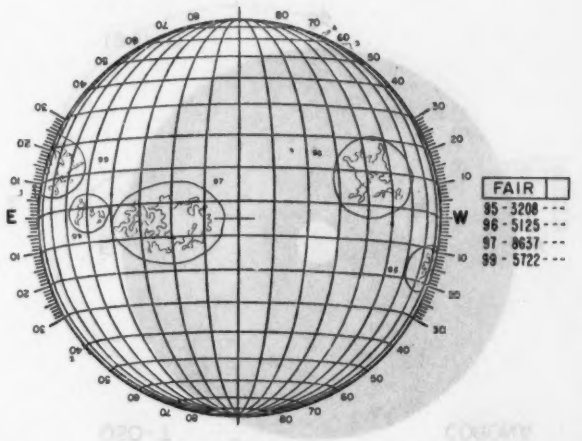


02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

CALCIUM REPORT

CATANIA



0845 UT

20-21 UT

02-03 UT
Brightness Unit 1,700° K

0845 UT

BOULDER
27

Np

Hα

E

W

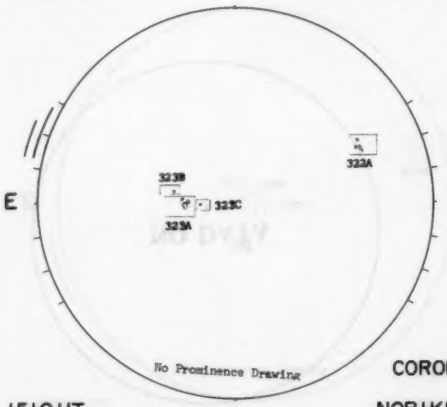
1435 UT

Sp

BOULDER

Np

SUNSPOTS



E

W

1510 UT

Sp

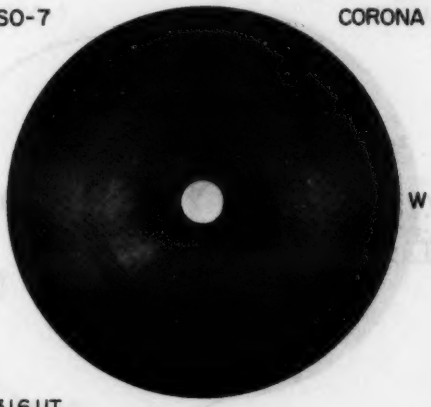
CORONA

NORIKURA

NRL
OSO-7

Np

WHITE-LIGHT
CORONA



E

W

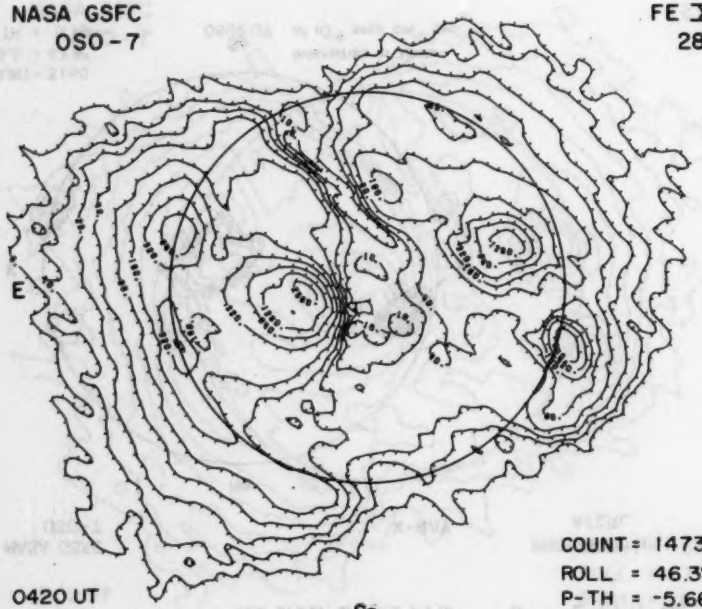
1316 UT

Sp

Np

NASA GSFC
OSO-7

FE XV
284A



E

W

COUNT = 147318
ROLL = 46.3°
P-TH = -5.66

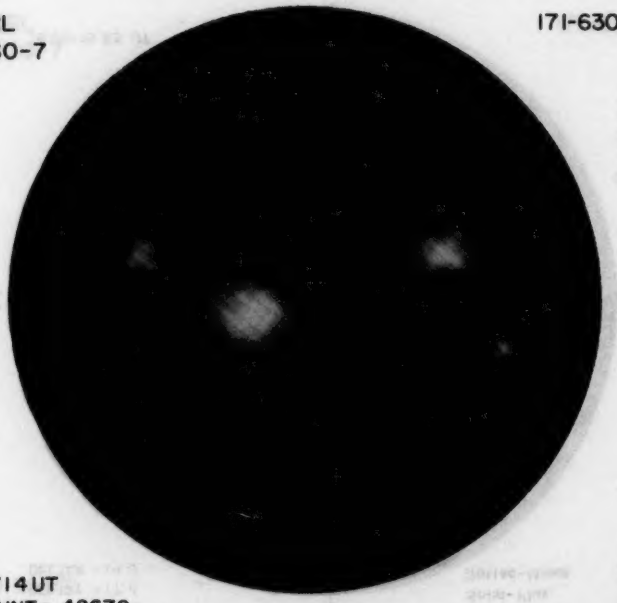
0420 UT

Sp

NRL
OSO-7

Np

171-630A



E

W

0714 UT
COUNT = 42670

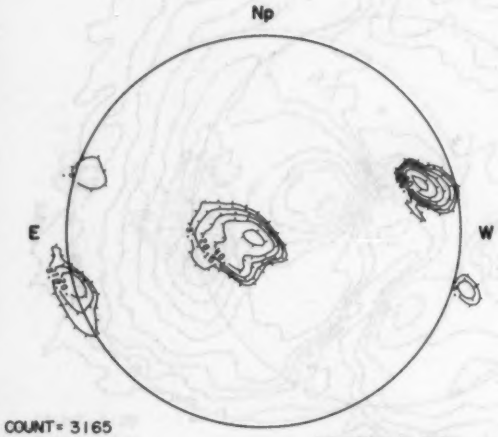
Sp

83
Apr 73

APRIL 28, 1973 (P = -24.71, B_o = -4.44, L_o = 99.27)

NASA GSFC
OSO-7

X-RAY



COUNT = 3165
ROLL = 47.8°
P-TH = -5.74

0502 UT

Intensities in Units of 10^{-6} ergs cm^{-2} sec^{-1}

PROSPECT HILL
AFCRL

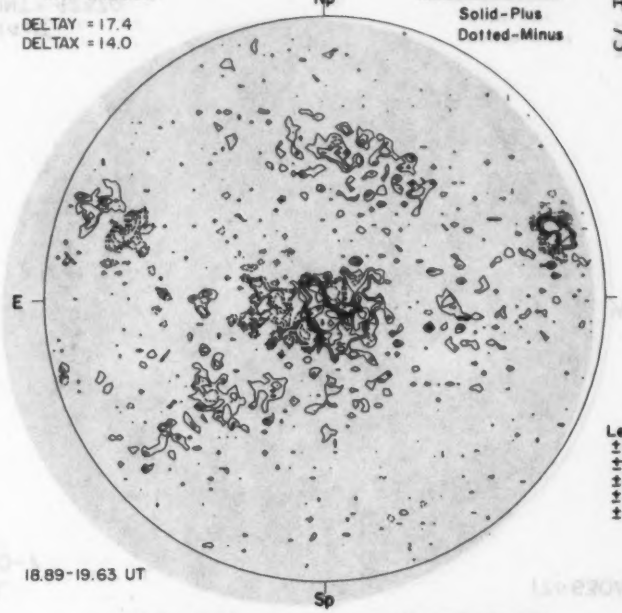
8.6 mm

Contours in Intervals of 200° K

MT. WILSON

DELTAY = 17.4
DELTAX = 14.0

MAGNETOGRAM
Solid-Plus
Dotted-Minus

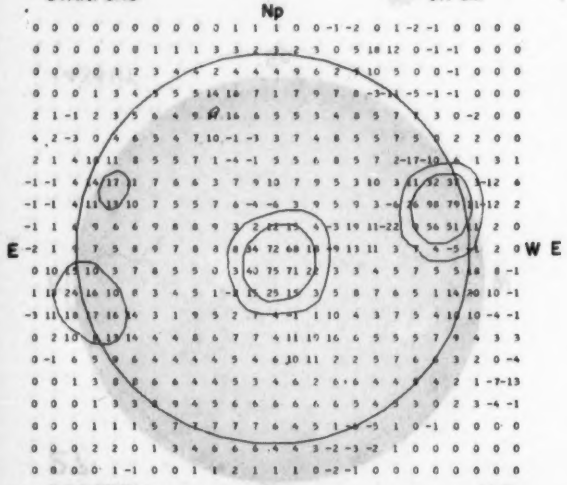


Levels
±5
±10
±20
±40
±80

18.89-19.63 UT

STANFORD

9.1 cm



20-21 UT

Brightness Unit 5,000° K

FLEURS, AUSTRALIA

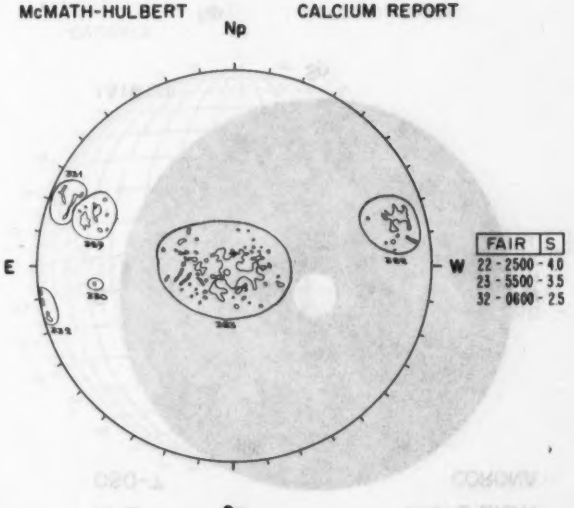
21 cm

02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT

CALCIUM REPORT



1620 UT

20-21 UT

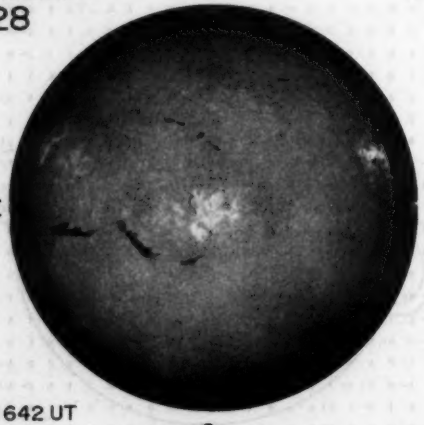
02-03 UT Brightness Unit 1,700° K

1620 UT

BOULDER
28

Np

Hα



E W

1642 UT

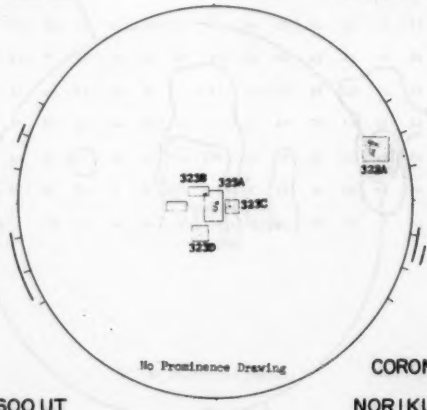
Sp

Np

BOULDER

Np

SUNSPOTS



E W

1600 UT

Sp

CORONA

NORIKURA

NRL
OSO-7

Np

WHITE-LIGHT
CORONA

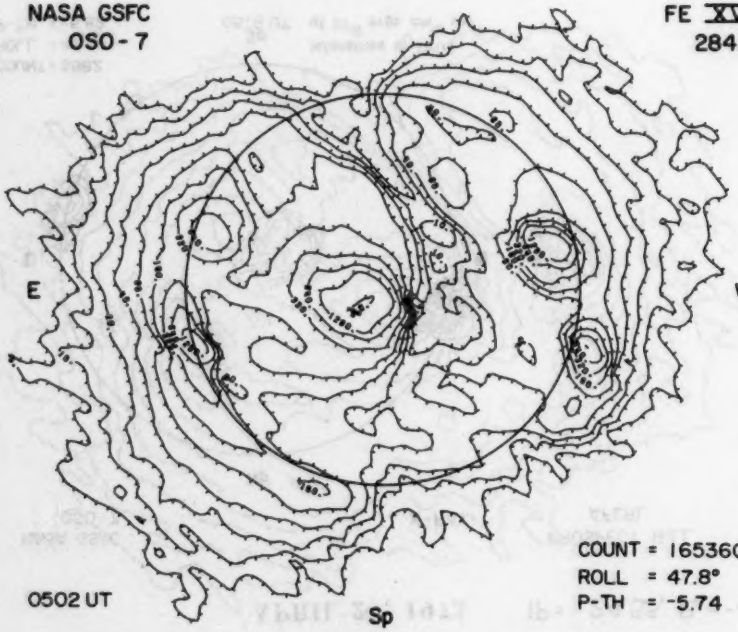
E W

1040 UT

Sp

NASA GSFC
OSO-7

FE XV
284A



E W

0502 UT

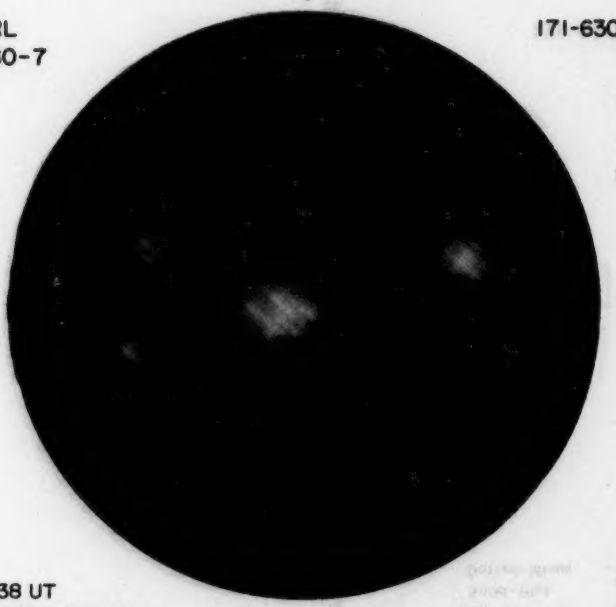
Sp

COUNT = 165360
ROLL = 47.8°
P-TH = -5.74

Np

NRL
OSO-7

171-630A



E W

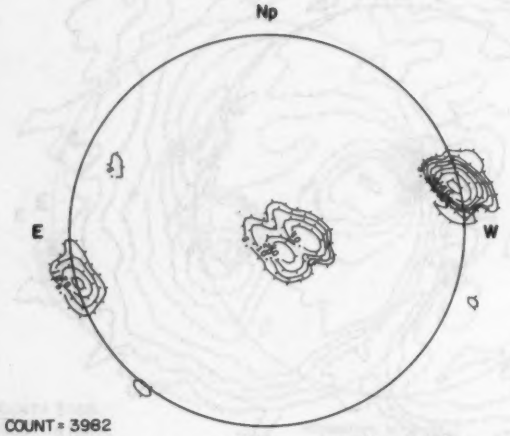
0138 UT
COUNT = 43345

Sp

85
Apr 73

APRIL 29, 1973 (P = - 24.55, B_o = -4.34, L_o = 86.06)

NASA GSFC
OSO-7
X-RAY

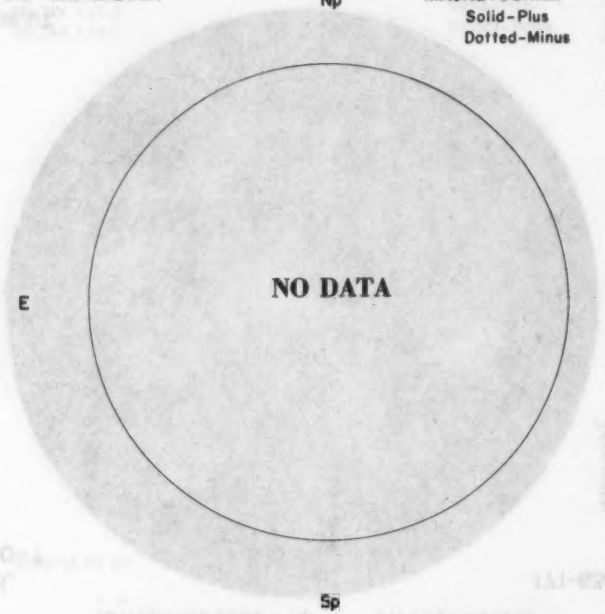


COUNT = 3982
ROLL = 47.0°
P-TH = -5.82
0519 UT
Intensities in Units of 10^{-6} ergs cm^{-2} sec^{-1}

PROSPECT HILL
AFCRL
8.6 mm

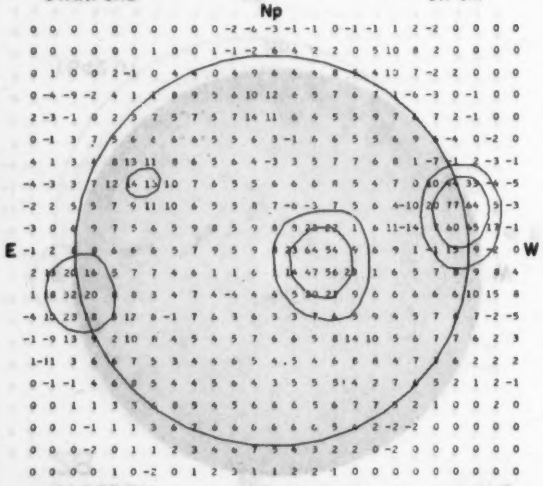
Contours in Intervals of 200° K

MT. WILSON
MAGNETOGRAM
Solid-Plus
Dotted-Minus



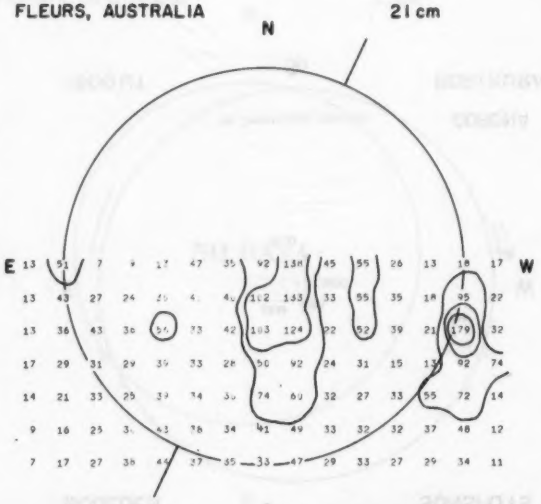
Levels
±5
±10
±20
±40
±80

STANFORD
9.1 cm



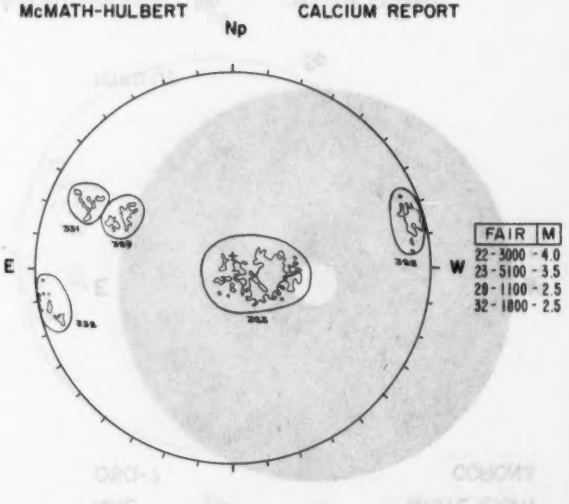
20-21 UT
Brightness Unit 5,000° K

FLEURS, AUSTRALIA
21 cm



02-03 UT
Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT
CALCIUM REPORT



FAIR	M
22 - 3000	- 4.0
23 - 5100	- 3.5
29 - 1100	- 2.5
32 - 1800	- 2.5

1340UT

RAMEY AFB
Hα

CANARY IS.

20-21 UT

Brightness Unit 3,000° K

02-03 UT

Brightness Unit 1,700° K

1340UT

RAMEY AFB
29

Np

Hα

E

W

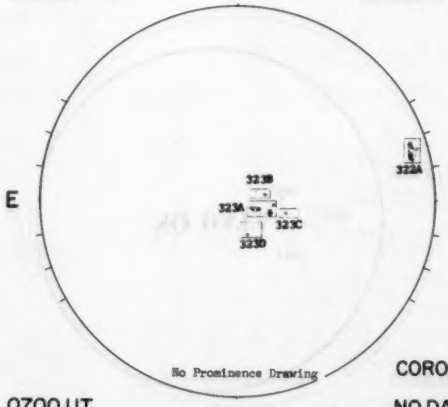
1142 UT

Sp

CANARY IS.

Np

SUNSPOTS



E

W

0700 UT

Sp

CORONA

NO DATA

NRL
OSO-7

Np

WHITE-LIGHT
CORONA

E

W

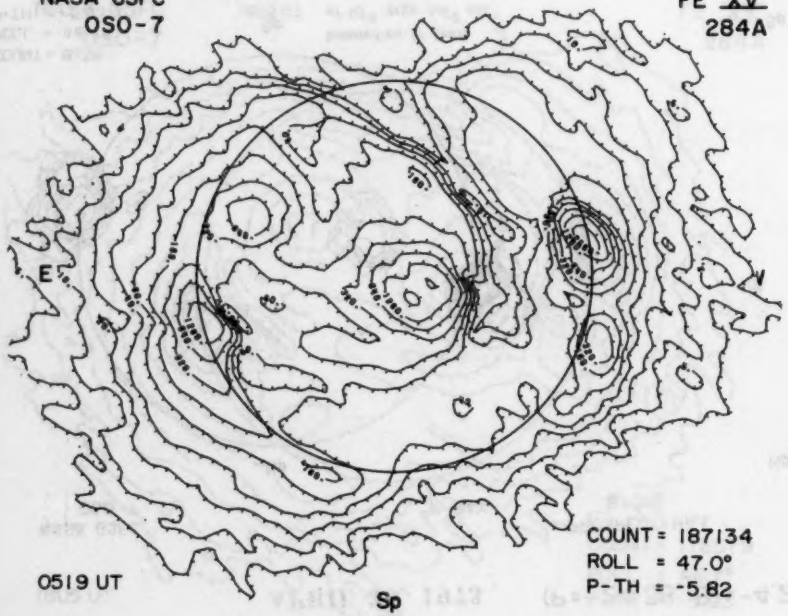
0940 UT

Sp

Np

NASA GSFC
OSO-7

FE XV
284A



E

W

COUNT = 187134
ROLL = 47.0°
P-TH = -5.82

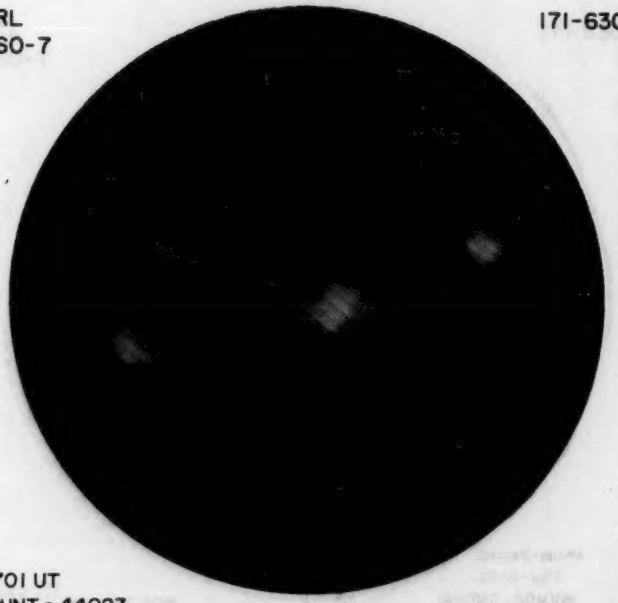
0519 UT

Sp

Np

NRL
OSO-7

171-630A



E

W

0701 UT
COUNT = 44023

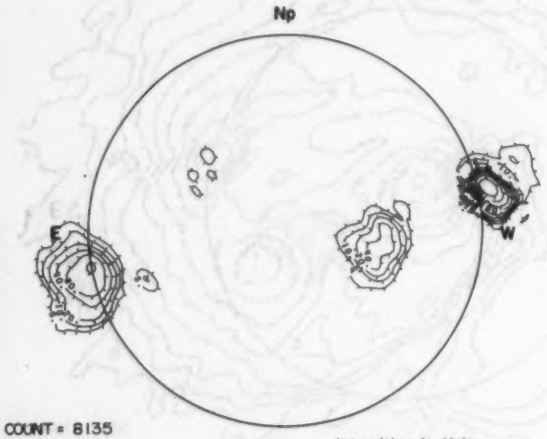
Sp

87
Apr 73

APRIL 30, 1973 (P=-24.38, B_o=-4.24, L_o=72.84)

NASA GSFC
OSO-7

X-RAY



COUNT = 8135
ROLL = 46.7°
P-TH = -5.93°

1805 UT

Intensities in Units of 10^{-6} ergs cm^{-2} sec^{-1}

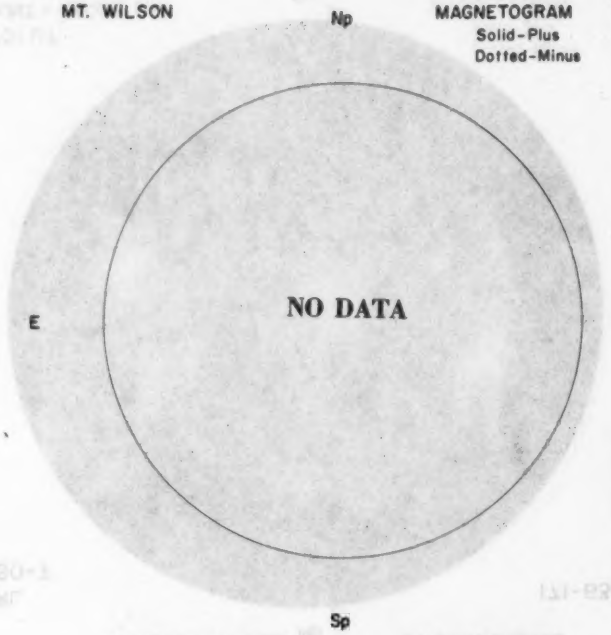
PROSPECT HILL
AFCRL

8.6 mm

Contours in intervals of 200° K

MT. WILSON

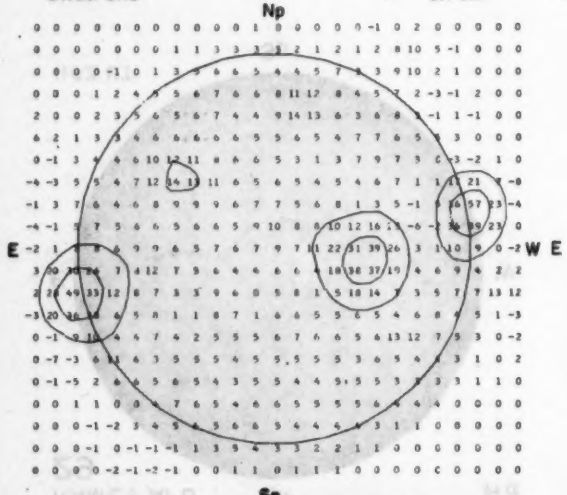
MAGNETOGRAM
Solid-Plus
Dotted-Minus



Levels
±5
±10
±20
±40
±80

STANFORD

9.1 cm

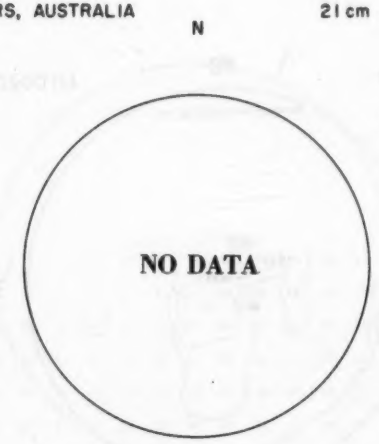


20-21 UT

Brightness Unit 5,000° K

FLEURS, AUSTRALIA

21 cm

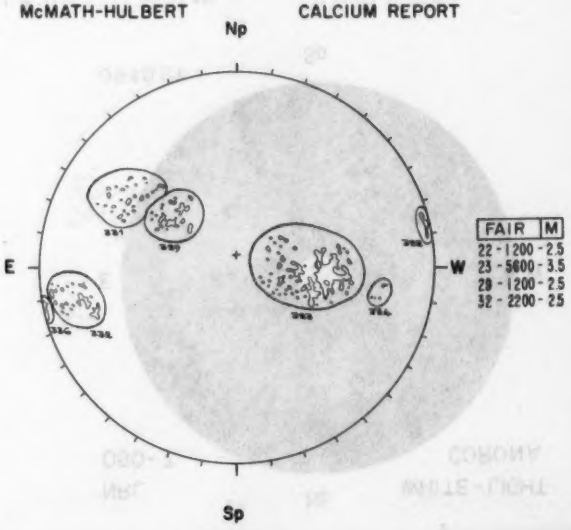


02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT

CALCIUM REPORT



1920 UT

20-21 UT

02-03 UT Brightness Unit 1,700° K

1920 UT

BOULDER
30

Np

Hα

E

NO DATA

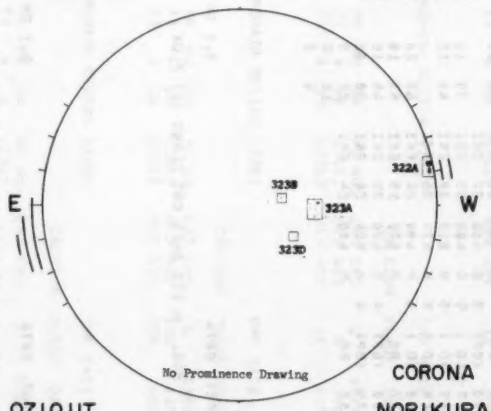
W

Sp

CANARY IS.

Np

SUNSPOTS



0710 UT

Sp

CORONA

NORIKURA

NRL
OSO-7

Np

WHITE-LIGHT
CORONA

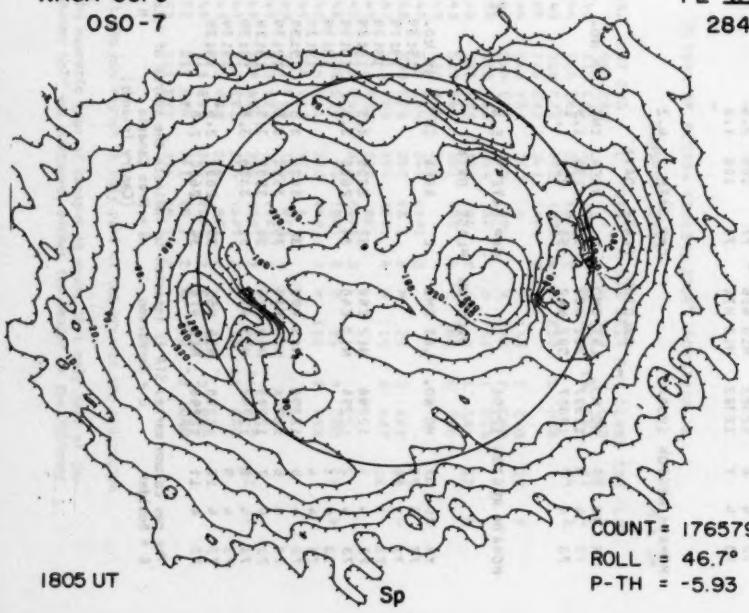
1012 UT

Sp

NASA GSFC
OSO-7

Np

FE XV
284A



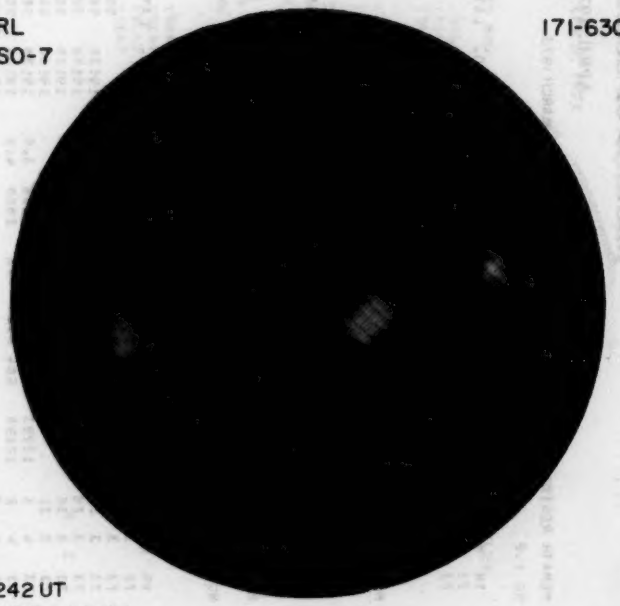
COUNT = 176579
ROLL = 46.7°
P-TH = -5.93

1805 UT

NRL
OSO-7

Np

171-630A



0242 UT
COUNT = 45280

89
Apr 73

REGIONS OF SOLAR ACTIVITY

APRIL 1973

MCMATH REGION 12381 CMP DATE 30.8 MARCH 1973

				CALCIUM PLAGE DATA				SUNSPOT DATA										9.1 CM
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT	FLUX
73	4	5	12381	S03 W77	111	200	2.5											
73	4	6	12381	S04 W89	110	100	1.5											

MCMATH REGION 12383 CMP DATE 31.2 MARCH 1973

				CALCIUM PLAGE DATA				SUNSPOT DATA										9.1 CM
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT	FLUX
73	4	5	12383	S12 W72	106	200	2.5											
73	4	6	12383	S13 W85	106	100	1.0											

MCMATH REGION 12293 CMP DATE 2.3

				CALCIUM PLAGE DATA				SUNSPOT DATA										9.1 CM
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT	FLUX
73	3	26	12293	S05 E90	76	400	2.0										15	5
73	3	27	12293	S03 E80	74	1500	3.5		S03 E78				G	100	3	DSO	18	6
73	3	28	12293	S04 E66	74	1300	4.0	19138	S05 E60	77	BP		G	280	4	DSO	28	10
73	3	29	12293	S04 E51	76	1500	3.5	19138	S05 E45	77	BP		G	300	16	DSI	31	11
73	3	30						19138	S06 E33	78	(BP)	5	G	410	27	DKI		
73	3	31						19138	S07 E20	77	(D)	5	G	480	35	EAI	39	13
73	4	1	12293	S04 E08	79	2100	3.5	19138	S07 E08	79	(D)	5	M	610	38	EKI	44	15
73	4	2	12293	S04 W04	78	2800	4.0	19138	S05 W07	78	(D)	5	M	420	36	EKI		
73	4	3						19138	S05 W18	78	(D)	5	M	480	26	EKI	60	20
73	4	4						19138	S05 W34	77	BY		M	670	15	EKI	53	18
73	4	5	12293	S04 W45	79	4000	4.0	19138	S05 W50	80	(BP)	4	G	420	36	EKI	46	15
73	4	6	12293	S05 W58	79	4600	4.0	19138	S05 W58	79	(BP)	4	M	820	20	EKI	38	12
73	4	7	12293	S05 W71	79	4600	4.0	19138	S05 W77	80	BP		M	680	24	EKI	27	9
73	4	8	12293	S04 W82	77	3200	3.0										16	5
73	4	9															9	3

MCMATH REGION 12302 CMP DATE 2.3

				CALCIUM PLAGE DATA				SUNSPOT DATA										9.1 CM
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT	FLUX
73	4	5	12302	N18 W44	78	200	2.0											
73	4	6	12302	N18 W56	77	100	2.0											
73	4	7	12302	N18 W70	78	100	1.0											

MCMATH REGION 12307 CMP DATE 4.2

				CALCIUM PLAGE DATA				SUNSPOT DATA										9.1 CM
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT	FLUX
73	4	6	12307	S02 W32	53	200	1.5											
73	4	7	12307	S02 W42	50	200	1.0											

MCMATH REGION 12298 CMP DATE 5.4 RETURN OF REGION 12259 ROTATION 1&3

				CALCIUM PLAGE DATA				SUNSPOT DATA										9.1 CM
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT	FLUX
73	3	29						19139	N12 E85	37	AP							
73	3	30						19139	N11 E72	39			G	180	1	HSX		
73	3	31						19139	N11 E58	39	(D)	4	G	150	6	DAO		
73	4	1	12298	N12 E50	37	2200	3.5	19139	N11 E47	40	(Y)	4	M	240	9	CKO	19	6
73	4	2	12298	N13 E40	34	2600	3.5	19139	N11 E32	39	(D)	4	M	340	10	DKO	13	4
73	4	3						19139	N11 E21	39	(Y)	4	M	260	11	DKO	11	4
73	4	4						19139	N11 E05	38	Y		M	160	7	DKO	7	2
73	4	5	12298	N13 W03	37	3000	3.5	19139	N11 W10	40	(D)	4	G	170	10	DSO	17	6
73	4	6	12298	N14 W15	36	3500	3.5	19139	N12 W18	39	(Y)	5	M	210	8	DKI	7	2
73	4	7	12298	N13 W26	34	3500	3.5	19139	N12 W37	40	(AP)	4	M	260	10	DAI	6	2
73	4	8	12298	N13 W36	31	3300	3.0	19139	N12 W46	40	(AP)	3	C	40	3	CSO	7	2
73	4	9						19139	N13 W62	43	AP		M	110	3	CAO	9	3
73	4	10	12298	N14 W65	35	2600	2.5	19139	N12 W74	42	(AP)	2	M	50	3	CAO	7	2
73	4	11	12298	N15 W78	34	2600	2.0		N13 W80				M	30	1	AXX	5	2

The new column marked STA is inserted to indicate the source of data for sunspot area, count and classification.
B = Boulder C = Carnarvon G = Gran Canaria (Canary Islands) M = Manila

REGIONS OF SOLAR ACTIVITY

APRIL 1973

MCMATH REGION 12299 CMP DATE 6.2

				CALCIUM PLAGE DATA				SUNSPOT DATA										9.1 CM	
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT	FLUX	
73	4	1	12299	S13 E60	27	200	2.0												
73	4	2	12299	S13 E47	27	500	3.0	19142	S14 E44	27	(BF)	3							
73	4	3						19142	S12 E32	28	BF)	3	H	50	3	DRO	9	3	
73	4	4						19142	S13 E17	26	A		H	10	1	HRX	6	2	
73	4	5	12299	S13 E07	27	400	2.0										7	2	
73	4	6	12299	S14 W07	28	400	2.0										4	1	
73	4	7	12299	S14 W17	25	300	2.0												
73	4	8	12299	S14 W28	23	300	1.0												

MCMATH REGION 12304 CMP DATE 7.0 RETURN OF REGION 12259* ROTATION 3

				CALCIUM PLAGE DATA				SUNSPOT DATA										9.1 CM	
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT	FLUX	
73	4	1	12304	N14 E75	12	500	1.0												
73	4	2	12304	N14 E60	14	500	1.5												
73	4	5	12304	N16 E15	19	700	2.0	19147	N15 E06	24	B								
73	4	6	12304	N14 E04	17	600	1.5	19147	N15 W03	24	(AF)	1							
73	4	7	12304	N14 W07	15	600	1.5	19147	N15 W19	22	AF								
73	4	8	12304	N14 W17	12	600	1.5	19147	N15 W28	22	AF								
73	4	10	12304	N14 W47	17	500	1.0												
73	4	11	12304	N14 W60	16	400	1.0												
73	4	12	12304	N14 W75	18	300	1.0										8	2	

MCMATH REGION 12313 CMP DATE 7.6

				CALCIUM PLAGE DATA				SUNSPOT DATA										9.1 CM	
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT	FLUX	
73	4	12	12313	N12 W65	8	300	2.0	19154	N11 W65	7	(AP)	1							
73	4	13	12313	N13 W80	11	600	1.5										3	1	

MCMATH REGION 12308 CMP DATE 8.6

				CALCIUM PLAGE DATA				SUNSPOT DATA										9.1 CM	
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT	FLUX	
73	4	10	12308	N25 W26	356	100	1.0												
73	4	11	12308	N25 W39	355	100	1.0												

MCMATH REGION 12300 CMP DATE 9.2 RETURN OF REGION 12263 & 12264* ROTATION 2

				CALCIUM PLAGE DATA				SUNSPOT DATA										9.1 CM	
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT	FLUX	
73	4	1	12300						S12 E84			H		140	3	CAO	10	3	
73	4	2	12300	S08 E78	357	1400	2.5	19143	S14 E81	351	(BP	3	H	200	16	EKI	12	4	
73	4	3						19144	S16 E67	354	(BF)	2					24	8	
73	4							19143	S14 E71	350	(BP)	4	H	250	1	HSX			
73	4							19145	S15 E80	341	(AP)	3							
73	4	4						19144	S16 E51	353	B		H	140	7	CHO	22	7	
73	4							19143	S14 E55	349	BP		H	230	7	CHO			
73	4							19145	S15 E60	344	AP		H	40	1	HSX			
73	4	5	12300	S08 E42	353	4200	3.5	19148	S08 E35	356	(BP	1	G	8	1	AXX	17	6	
73	4							19143	S13 E40	351	(BP	4	G	60	6	CSO			
73	4							19149	S10 E44	347									
73	4							19145	S15 E49	342	(AP)	3							
73	4	6	12300	S09 E30	352	5000	3.5	19148	S09 E25	357	(B)	2	H	20	3	AXX	16	5	
73	4							19143	S13 E20	354	(AP)	4	H	110	2	HAX			
73	4							19149	S10 E32	350	BF								
73	4							19145	S15 E40	342	(AP)	3							
73	4	7	12300	S10 E18	351	5200	3.5	19148	S09 E04	-0	(BP)	2	H	50	9	DRO	16	5	
73	4							19143	S14 E11	353	(AP)	3	H	110	2	HSX			
73	4							19144	S16 E12	352	A								
73	4							19149	S11 E18	346	BF)	1							
73	4							19145	S15 E22	342	(AP)	2							
73	4	8	12300	S10 E08	348	4800	3.5	19148	S09 W04	359	(BP)	3	C	80	11	DSO	22	7	
73	4							19143	S12 E01	354	(AP)	2	C	40	10	DRO			
73	4							19149	S11 E09	346	BF)	1							
73	4							19145	S15 E13	342	(AP)	2	C	30	3	CRO			
73	4							19152	S17 E14	341	(B)	2	C	40	3	DRO			
73	4							19153	S11 E21	334	(B)	2							

(cont'd)

*An asterisk beside the "Return of Region" number indicates that the new region is only part of the area of the old region.

Note: When there is only one side of the parenthesis around the magnetic type of sunspot it means that only half of the sunspot group was measured. The parenthesis is on whichever half was measured, either the leader or the follower.

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(cont'd)

73	4	9						19148	S07 W20	1	BP		M	100	18	DAI	18	6
73	4							19143	S09 W16	357	AP		M	30	10	BXO		
73	4							19149	S10 W09	350	AF		M	10	1	AXX		
73	4							19145	S13 W02	343	AP		M	30	1	HRX		
73	4	10	12308	S10 W20	350	5000	4.0	19148	S09 W32	8	(BP)	3	M	210	11	DAI	17	5
73	4							19143	S12 W26	354	(AP)	2	M	10	2	AXX		
73	4							19149	S11 W20	348	BF)	1						
73	4							19145	S15 W14	342	(AP)	2	M	10	1	AXX		
73	4							19152	S17 W14	342	(B)	2						
73	4	11	12308	S10 W33	349	5000	3.5	19148	S08 W43	358	(B)	2	M	100	15	DAI	20	7
73	4							19143	S13 W38	353	(AP)	1	M	10	2	AXX		
73	4							19149	S10 W36	351	B							
73	4							19145	S15 W26	341	(AP)	2						
73	4	12	12308	S11 W47	350	4800	3.0	19148	S09 W57	359	(BF)	2	M	90	8	DAI	14	5
73	4	13	12308	S10 W60	351	4700	3.0	19148	S09 W66	355	(AF)	2	M	30	1	HRX	13	4
73	4	14	12308	S11 W72	349	4500	3.5											
73	4	15	12308	S11 W82	346	1800	1.0											

MCMATH REGION 12305 CMP DATE 10.3 RETURN OF REGION 12271 ROTATION 2

CALCIUM PLAGE DATA — SUNSPOT DATA — 9.1 CM

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT	FLUX
73	4	5	12305	N16 E54	341	500	2.3	19150	N15 E45	346	(AP)	1						
73	4	6	12305	N18 E41	341	500	2.0											
73	4	7	12305	N18 E30	339	500	1.5											
73	4	8	12305	N16 E21	335	200	1.0											
73	4	10	12305	N16 W04	334	100	1.0											
73	4	11	12305	N16 W17	333	100	1.0											

MCMATH REGION 12306 CMP DATE 10.9

CALCIUM PLAGE DATA — SUNSPOT DATA — 9.1 CM

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT	FLUX
73	4	5	12306	S13 E66	327	600	1.5		S13 E57				G	10	1	HSX		
73	4	6	12306	S12 E58	324	1400	2.0		S15 E49				M	20	1	HRX		
73	4	7	12306	S10 E46	323	1600	3.5	19151	S10 E40	324	(BY)	4	M	30	2	BXO	23	8
73	4								S14 E35				M	20	1	HRX		
73	4	8	12306	S08 E32	324	2500	4.0	19151	S09 E32	323	(B)	4	C	270	29	DAC	52	17
73	4	9						19151	S07 E16	325	B		M	590	21	DKI	6	2
73	4								S10 E12				M	30	5	CRO		
73	4	10	12306	S09 E05	325	3000	4.0	19151	S09 E04	324	(BY)	5	M	640	18	DKI	38	12
73	4								S15 W05				M	10	2	AXX		
73	4								S13 W06				M	10	1	HSX		
73	4	11	12306	S09 W08	324	3000	4.0	19151	S09 W09	324	(B)	4	M	390	42	DKI	66	21
73	4								S15 W19				M	10	2	AXX		
73	4	12	12306	S10 W20	323	3000	4.0	19151	S09 W23	325	(BY)	4	M	360	28	DKC	42	13
73	4	13	12306	S10 W33	324	2900	4.0	19151	S08 W36	325	(BF)	4	M	360	32	DKC	43	14
73	4							19155	S13 W28	317	(AP)	1						
73	4	14	12306	S09 W47	324	3300	4.5	19151	S08 W49	324	BP		M	340	18	DKI	36	12
73	4							19155	S13 W41	316	BF							
73	4	15	12306	S09 W61	325	3400	4.0	19151	S08 W63	326	(BP)	3	M	250	16	DAI	30	10
73	4	16	12306	S09 W75	325	3000	4.0	19151	S08 W77	325	(BP)	4	M	270	17	DAI	29	9
73	4	17	12306	S08 W87	325	1800	2.5	19151	S08 W89	325	AP		M	370	15	DAO	18	6

MCMATH REGION 12316 CMP DATE 11.2

CALCIUM PLAGE DATA — SUNSPOT DATA — 9.1 CM

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT	FLUX
73	4	13	12316	S26 W31	322	100	1.0											
73	4	14	12316	S27 W43	320	300	1.0											

MCMATH REGION 12310 CMP DATE 14.7

CALCIUM PLAGE DATA — SUNSPOT DATA — 9.1 CM

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT	FLUX
73	4	10	12310	S12 E55	275	200	1.0										5	2
73	4	11	12310	S13 E42	274	100	1.0										8	2
73	4	12	12310	S13 E28	275	100	1.0										6	2

MCMATH REGION 12317 CMP DATE 15.3

CALCIUM PLAGE DATA — SUNSPOT DATA — 9.1 CM

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT	FLUX
73	4	13	12317	S04 E25	266	200	2.0											
73	4	14	12317	S04 E10	267	300	1.0											
73	4	15	12317	S04 W03	267	200	1.0											

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MCMATH REGION 12319 CMP DATE 15.6

CALCIUM PLAGE DATA — SUNSPOT DATA — 9.1 CM

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT	FLUX
73	4	16	12319	N05 W12	262	100	1.0											

MCMATH REGION 12312 CMP DATE 15.7

CALCIUM PLAGE DATA — SUNSPOT DATA — 9.1 CM

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT	FLUX
73	4	10	12312	N13 E69	261	100	1.0											
73	4	11	12312	N14 E55	261	200	1.0											

MCMATH REGION 12311 CMP DATE 16.2

CALCIUM PLAGE DATA — SUNSPOT DATA — 9.1 CM

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT	FLUX
73	4	10	12311	S17 E77	253	200	1.0										5	2
73	4	11	12311	S17 E66	250	400	2.0											
73	4	12	12311	S17 E53	250	400	2.0											
73	4	13	12311	S17 E37	254	400	2.0											
73	4	14	12311	S17 E22	255	700	2.0											
73	4	15	12311	S19 E09	255	600	2.0											
73	4	16	12311	S18 W05	255	400	2.0											
73	4	17	12311	S18 W18	256	300	2.0											
73	4	18	12311	S19 W33	256	400	2.0										10	3
73	4	19	12311	S19 W45	255	500	2.0											
73	4	20	12311	S18 W61	258	300	1.0											

MCMATH REGION 12318 CMP DATE 17.4

CALCIUM PLAGE DATA — SUNSPOT DATA — 9.1 CM

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT	FLUX
73	4	14	12318	N01 E36	241	300	2.0											
73	4	15	12318	N00 E24	240	300	2.0	19156	S01 E21	242	(BF)	2	H	20	2	CRO		
73	4	16	12318	S01 E11	239	300	2.0	19156	N01 E06	242	(A)	2	H	10	1	HRX		
73	4	17	12318	S01 W03	241	200	2.0	19156	N01 W06	242	A		H	0	1	AXX		
73	4	18	12318	N01 W18	241	200	1.5											
73	4	19	12318	N01 W31	241	100	1.0											

MCMATH REGION 12314 CMP DATE 18.3

CALCIUM PLAGE DATA — SUNSPOT DATA — 9.1 CM

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT	FLUX
73	4	12	12314	S15 E80	223	500	1.5											
73	4	13	12314	S15 E66	225	600	2.0											
73	4	14	12314	S15 E50	227	600	2.0											
73	4	15	12314	S15 E36	228	700	2.0											
73	4	16	12314	S16 E23	227	400	2.0											
73	4	17	12314	S16 E10	228	500	2.0											
73	4	18	12314	S16 W05	228	500	2.0											
73	4	19	12314	S16 W19	229	500	2.0											
73	4	20	12314	S16 W33	230	400	1.0											
73	4	21	12314	S17 W47	230	400	1.0											
73	4	22	12314	S17 W65	233	300	1.0											
73	4	23	12314	S15 W75	233	200	1.0											

MCMATH REGION 12315 CMP DATE 18.7 RETURN OF REGION 12273 ROTATION 3

CALCIUM PLAGE DATA — SUNSPOT DATA — 9.1 CM

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT	FLUX
73	4	12	12315	N18 E80	223	300	1.0											
73	4	13	12315	N17 E63	228	500	1.0											
73	4	14	12315	N17 E50	227	800	1.5											
73	4	15	12315	N16 E41	223	1000	1.5											
73	4	16	12315	N17 E28	222	800	1.5											
73	4	17	12315	N17 E15	223	600	1.5		N16 E08				H	20	2	BXO		
73	4	18	12315	N17 E01	222	800	2.0											
73	4	19	12315	N17 W12	222	700	1.5											
73	4	20	12315	N17 W28	225	700	1.0											
73	4	21	12315	N18 W40	223	700	1.0											
73	4	22	12315	N18 W57	225	600	1.0											
73	4	23	12315	N18 W65	223	300	1.0											

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MCMATH REGION 12325 CMP DATE 20.2

CALCIUM PLAGE DATA — SUNSPOT DATA — 9.1 CM

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT	FLUX
73	4	24	12325	S05 W57	203	100	1.0											

MCMATH REGION 12324 CMP DATE 20.3

CALCIUM PLAGE DATA — SUNSPOT DATA — 9.1 CM

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT	FLUX
73	4	22	12324	N54 W34	262	100	1.5											

MCMATH REGION 12326 CMP DATE 21.1

CALCIUM PLAGE DATA — SUNSPOT DATA — 9.1 CM

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT	FLUX
73	4	24	12326	N06 W45	191	100	1.0											

MCMATH REGION 12321 CMP DATE 21.7

CALCIUM PLAGE DATA — SUNSPOT DATA — 9.1 CM

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT	FLUX
73	4	17	12321	S14 E58	180	100	1.5											
73	4	18	12321	S14 E42	181	300	3.0	19157	S15 E37	186	BF		H	70	9	DAO		
73	4	19	12321	S14 E27	183	1000	3.5	19157	S15 E26	184	(BF)	4	G	100	14	DAI	17	5
73	4	20	12321	S14 E13	184	1200	3.0	19157	S15 E14	184	(BF)	4	H	160	13	DAO	11	3
73	4	21	12321	S15 E00	183	1100	3.0	19157	S15 E00	184	(BF)	3	H	140	10	DAO	11	3
73	4	22	12321	S15 W13	181	1700	3.5	19157	S15 W15	186	(B)	3	H	100	18	CAO	12	4
73	4	23	12321	S15 W25	183	1700	3.5	19157	S15 W28	185	(B)	3	H	80	15	CAO	9	3
73	4								S17 W10				H	10	2	AXX		
73	4	24	12321	S15 W40	186	1700	3.0	19157	S15 W42	187	(BP)	3	H	50	7	CRO	7	2
73	4	25	12321	S15 W54	187	1400	3.0		S17 W53				H	20	4	BXO	6	2
73	4	26	12321	S16 W66	185	1500	2.5										5	1

MCMATH REGION 12327 CMP DATE 22.2

CALCIUM PLAGE DATA — SUNSPOT DATA — 9.1 CM

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT	FLUX
73	4	24	12327	N08 W31	177	100	1.0											
73	4	25	12327	N08 W44	177	200	1.5											
73	4	26	12327	N08 W57	176	200	1.5											

MCMATH REGION 12320 CMP DATE 23.2

CALCIUM PLAGE DATA — SUNSPOT DATA — 9.1 CM

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT	FLUX
73	4	17	12320	N06 E79	159	300	2.0											
73	4	18	12320	N07 E60	163	200	1.5											

MCMATH REGION 12322 CMP DATE 24.2 — RETURN OF REGION 12280 — ROTATION 3

CALCIUM PLAGE DATA — SUNSPOT DATA — 9.1 CM

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT	FLUX
73	4	18	12322	N08 E75	148	2200	3.5	19158	N11 E78	145	(AP)	3	H	400	6	DAO	14	4
73	4							19159	N09 E81	142	(AP)	2						
73	4	19	12322	N10 E62	148	2800	3.5	19158	N12 E63	147	(BP)	3	G	90	2	CSO	21	7
73	4							19159	N10 E65	145	(BP	3	G	60	1	HSX		
73	4	20	12322	N11 E49	148	3000	3.5	19158	N12 E47	151	(BP)	4	H	390	8	DAO	3	1
73	4							19159	N10 E50	148	(AP)	4						
73	4	21	12322	N12 E35	148	2500	3.5	19158	N12 E34	150	(B)	4	H	370	20	DAI	14	4
73	4							19159	N10 E38	146	(AP)	4	H	130	3	HAX		
73	4	22	12322	N11 E19	149	2700	3.5	19158	N13 E22	149	(D)	5	H	480	23	DAI	43	13
73	4							19159	N10 E24	147	(AP)	4	H	100	2	HKX		
73	4	23	12322	N12 E09	149	2400	3.5	19158	N12 E08	149	(D)	4	H	490	24	DAI	48	12
73	4							19159	N10 E11	146	(AP)	3	H	90	2	HKX		
73	4	24	12322	N12 W04	150	2700	3.5	19163	N15 W08	153	(BP)	2					32	10
73	4							19158	N12 W06	151	(BY)	4	H	430	24	DAI		
73	4							19159	N10 W03	148	(AP)	4						
73	4	25	12322	N12 W17	150	2700	4.0	19163	N13 W23	154	BF)	3					31	10
73	4							19158	N12 W19	150	(D)	5	H	480	28	DAI		
73	4							19159	N10 W16	147	(AP)	4						

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73	4	26	12322	N12 W29	148	2500	3.5	19158	N11 W32	149	(D)	5	H	190	20	DAI	46	14
73	4							19159	N09 W29	146	(AP)	4						
73	4	27						19158	N11 W42	146	(D)	5	B	100	52	DAI	35	11
73	4							19159	N10 W40	144	(AP)	4						
73	4	28	12322	N12 W58	149	2500	4.0	19158	N12 W57	148	(D)	5	H	480	8	DKC	40	12
73	4	29	12322	N12 W70	149	3000	4.0		N11 W62				H	770	12	DKC	38	12
73	4	30	12322	N12 W83	146	1200	2.5		N10 W80				G	900	6	DKC		

MCMATH REGION 12334 CMP DATE 27.0

	CALCIUM PLAGE DATA						SUNSPOT DATA									9.1 CM
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	HW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT	FLUX
73	4	30	12334	S09 W58	113	200	1.0											
73	5	1	12334	S09 W63	114	200	1.5											
73	5	2	12334	S09 W72	110	200	1.0											

MCMATH REGION 12323 CMP DATE 28.7 RETURN OF REGION 12293 ROTATION 2

	CALCIUM PLAGE DATA						SUNSPOT DATA									9.1 CM
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	HW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT	FLUX
73	4	22	12323	S06 E76	92	2200	3.0	19160	S05 E86	85							32	10
73	4	23	12323	S06 E70	88	4200	3.5	19160	S07 E69	88	(D)	2	H	630	7	DKI	37	12
73	4							19161	S12 E73	84	(BF)	2						
73	4							19162	S01 E75	82	(AP)	1						
73	4	24	12323	S06 E60	86	4500	3.5	19160	S06 E55	90	(D)	5	H	390	3	DKI	37	12
73	4							19161	S11 E58	87	(BF)	3	H	40	2	CRO		
73	4							19162	S02 E60	85	(AP)	3	H	10	2	AXX		
73	4	25	12323	S06 E46	87	4700	3.5	19160	S06 E40	91	(D)	5	H	400	13	DKI	49	15
73	4							19161	S11 E45	86			H	10	1	AXX		
73	4							19164	N02 E44	87	BP							
73	4							19162	S02 E45	86	BP		H	20	3	AXX		
73	4	26	12323	S06 E33	86	4700	3.0	19160	S07 E28	89	(D)	5	H	300	18	DAI	50	16
73	4							19161	S09 E31	86								
73	4							19164	N00 E31	86	AP							
73	4							19162	S03 E31	86	AP		H	20	3	AXX		
73	4	27						19160	S07 E12	92	(D)	5	B	190	63	EAI	37	11
73	4							19161	S10 E16	88								
73	4							19162	S02 E18	86	(B)	3	B	10	11	BXO		
73	4	28	12323	S06 E00	91	5500	3.5	19160	S06 W02	93	(Y)	4	H	250	21	DAI	35	11
73	4							19161	S09 E01	90	(A)	3						
73	4							19165	S12 E03	88	(BF)	3						
73	4							19162	S02 E04	87	(B)	4	H	30	3	CRO		
73	4							19166	S05 E10	81	B							
73	4	29	12323	S06 W10	89	5100	3.5		S02 W02				H	30	5	CRO	34	11
73	4								S12 W03				H	40	5	CRO		
73	4								S06 W06				H	150	19	DAI		
73	4	30	12323	S06 W25	88	5600	3.5	19160	S04 W33	93	(A)	3	G	70	7	CAO		
73	4								S02 W16				G	10	2	BXO		
73	4							19161	S09 W32	92	(BP	2	G	10	4	BXO		
73	5	1	12323	S06 W36	87	5800	3.0	19160	S04 W42	93	(A)	2	H	20	5	CAO	18	5
73	5		12323					19161	S09 W41	92	(AP)	1						
73	5	2	12323	S06 W47	85	5800	3.0	19160	S05 W56	92	(BP)	3	B	10	1	AXX	22	6
73	5		12323					19161	S09 W56	92	(BP)	3	B	20	5	BXO		
73	5	3	12323	S06 W62	86	5500	3.0	19160	S04 W70	94	(A)	2	H	20	1	HRX	19	6
73	5		12323					19161	S09 W68	92	(BP)	2	H	100	4	CRO		
73	5	4	12323	S06 W80	89	3800	2.5	19160	S04 W86	94	A						14	4
73	5		12323					19161	S09 W84	92	AP		H	120	5	CRO		
73	5		12323						S06 W76				H	20	1	AXX		
73	5	5	12323	S05 W90	89	800	1.0										7	2

MCMATH REGION 12337 CMP DATE 30.3

	CALCIUM PLAGE DATA							SUNSPOT DATA									9.1 CM
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	HW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT	FLUX
73	5	3	12337	S16 W44	68	300	2.0											
73	5	4	12337	S16 W58	67	300	1.5											

Note: Region 12298 is mostly new plage that has formed ahead of old region 12259 of the previous rotation, but it also contains some remnants of old plage 12259.
Region 12299 is a new region, in the position of old 12261 of the previous rotation.
Region 12306 is a resurgence of activity, amongst remnants of old region 12264.
No calcium spectroheliograms were obtained at the McMath-Hulbert Observatory on April 3, 4, 9 and 27, 1973.
No sunspot observations were made at Mt. Wilson Observatory on April 29, 1973.

DAILY CALCIUM PLAGE INDEX

APRIL 1973

YR	MO	DAY	INDEX	YR	MO	DAY	INDEX	YR	MO	DAY	INDEX
73	4	1	17.2	73	4	11	27.7	73	4	21	10.9
73	4	2	22.4	73	4	12	21.5	73	4	22	16.2
73	4	3	*	73	4	13	17.9	73	4	23	18.0
73	4	4	*	73	4	14	17.7	73	4	24	20.6
73	4	5	35.3	73	4	15	10.4	73	4	25	23.7
73	4	6	39.7	73	4	16	5.8	73	4	26	20.9
73	4	7	39.1	73	4	17	2.9	73	4	27	*
73	4	8	34.7	73	4	18	5.9	73	4	28	26.1
73	4	9	*	73	4	19	9.9	73	4	29	25.1
73	4	10	33.4	73	4	20	11.0	73	4	30	24.6

* NO OBSERVATIONS

SOLAR X-RAYS MEASURED BY SATELLITE
SOLRAD 10 – EXPLORER 44

APRIL 1973

NAVAL RESEARCH LABORATORY 1 - 8A HOURLY AVERAGES (10^{-3} ergs/cm^2/sec)

DAY	HOUR																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	0.97	0.90	0.32	0.48	0.80	0.78	1.07	0.98	3.83	0.34	0.28	0.43	0.31	0.40	0.85	0.96	0.50	0.69	0.82	0.50	1.38	0.76	4.29	0.64
2	0.44	0.41	0.39	0.32	0.31	0.37	0.34	0.35	0.54	1.45<	0.82	0.43	0.50	0.59	0.98	0.61<	0.69<	0.75<	0.67<	0.96<	0.94<	0.58<	1.08<	1.07<
3	1.04	0.54	0.87	0.71	0.92	1.19	0.66	0.79	3.95	0.46	0.59	0.42	0.56	0.58	1.04	2.09	0.97	0.75	5.23	4.66	1.20	0.98	0.64	0.97
4	0.51	0.47	0.49	0.39	0.34	0.83	0.42	0.29	0.31	0.66	0.45	2.02	5.42	0.86	0.72	0.57	0.45	0.39	0.44	0.42	0.37	0.43	0.81	0.39
5	0.32	0.30	0.32	0.30	0.31	0.30	0.31	0.26	0.27	0.27	0.33	0.29	0.32	0.29	0.28	0.28	0.27	0.25	0.24	0.41	0.97	0.34	0.27	0.28
6	0.31	0.27	0.28	0.24	0.30	0.36	0.34	0.33	0.27	0.26	0.27	0.30	0.32	0.45	0.76	0.28	0.55	1.80	1.64	0.27	0.24	0.23	0.26	0.28
7	0.48<	0.36<	0.30<	0.26<	0.29<	0.28<	0.32<	0.33<	0.32<	0.35	0.30	0.26	0.23	0.27	0.27	0.26	0.34	1.71	0.72	1.22	0.94	0.46	0.84	1.27
8	1.52	0.64	2.23	3.11	1.62	1.82	2.58	6.03	3.11	1.59	1.32	2.53	2.39	1.38	2.46	1.28	1.34	1.47	1.52	1.65	1.58	1.29	1.31	1.73
9	1.94	1.68	1.82	2.35	2.29	1.93	1.31	1.74	1.68	1.73	1.44	1.57<	1.62<	2.77<	1.29	1.52	1.66	4.04	3.91	2.36	2.04	1.17	0.80	0.90
10	3.74	29.6	4.92	2.97	2.48	2.01	1.25	1.74	1.37	2.21	2.38	1.46	14.5	10.1	5.70	1.93	2.56	2.94	1.02	5.31	0.71	2.71	1.41	0.66
11	0.64	0.71	1.38	0.75	0.88	0.64	0.78	2.21	2.08	1.93	1.22	1.06	0.64	0.85	8.05	1.35	2.31	1.97	39.2	14.2	26.9	8.67	5.31	2.95
12	1.49	1.29	1.13	0.95	1.37	0.68	0.64	0.40	0.49	0.33	0.55	1.22	0.37	0.58	0.37	0.44	0.33	0.29	0.26	0.30	0.23	0.22	0.26	0.32
13	0.52	0.20	0.23	0.19	0.19	0.81	0.28	0.56	0.33	0.53	0.25	0.40	0.59	1.09	0.89	0.78	0.95	0.64	0.50	0.77	0.89	0.83	0.81	0.56
14	0.29	0.30	0.25	0.42	0.28	0.28	0.39	0.27	0.32	1.62	0.51	0.44	0.31	0.24	3.91	0.76	0.46	0.34	0.27	0.15	0.15	0.46	0.36	0.27
15	0.22	0.18	0.17	0.55	0.22	0.25	0.28	1.27	0.19	0.42	0.34	0.26	0.22	0.22	0.37	0.64	0.67	1.12	0.47	0.23	0.55	0.28	0.81	0.26
16	0.22	0.18	0.20	0.82	0.70	0.56	0.37	1.30	4.77	0.54	0.74	0.87	0.34	0.88	0.25	0.76	0.24	0.62	0.22	0.28	0.30	0.20	0.17	0.22
17	0.23	0.32	0.15	0.47	0.25	0.21	0.27	0.23	0.16	0.17	0.25	0.20	0.15	0.25	0.26	0.17	0.15	0.18	0.16	0.16	0.18	0.15	0.18	0.17
18	0.21	0.17	0.19	0.18	0.19	0.20	0.32	1.27	0.81	0.32	4.22	3.13	0.31	0.34	1.74	0.52	0.26	1.06	0.24	1.53	1.23	0.16	0.12	0.09
19	2.15	1.08	0.12	0.12	0.10	0.07	0.10	0.09	0.13	0.09	0.09	0.22	0.18	0.14	0.07	0.06	0.09	0.22	0.18	0.18	0.15	0.12	0.09	0.09
20	0.08	0.06	0.07	0.08	0.08	0.10	0.09	0.10	0.11	0.11	0.21	0.10	0.11	0.10	0.11	0.14<	0.19	0.14	0.14	0.16	0.15	0.16	0.28	0.20
21	0.23	0.15	0.17	0.55	0.20	0.23	0.68	0.72	0.64	0.56	0.44	1.05	0.58	1.21	0.59	0.75	1.40	0.68	0.32	0.49	0.32	0.24	0.33	0.32
22	0.28	0.28	0.32	0.30	0.30	0.30	0.97	0.37	0.41	0.37	1.24	0.32	0.38	0.35	4.27	3.06	1.14	1.00	1.74	1.26	1.38	6.12	2.75	0.63
23	0.43	0.68	0.49	0.56	0.35	0.31	0.29	0.32	0.31	0.37	0.97	0.64	0.31	0.68	0.38	0.59	0.93	2.39	0.79	0.64	1.11	0.64	0.66	0.50
24	0.37	0.34	0.34	0.54	0.34	0.36	0.42	0.52	1.04	0.81	0.66	0.38	0.38	0.46	4.71	0.47	0.29	0.42	0.30	2.33	0.48	0.39	0.37	0.36
25	0.33	0.53	1.04	0.72	4.14	1.14	0.64	0.56	0.39	0.34	0.39	0.48	1.86	0.68	0.26	0.48	0.68	0.51	0.29	0.29	0.27	0.35	0.24	0.26
26	0.28	0.43	0.61	0.32	0.37	0.74	19.8	5.19	0.74	0.46	0.37	0.30	0.27	0.53	0.37	0.39	0.34	0.32	0.28	12.5	46.9	0.81	0.45	1.77
27	0.45	0.45	0.35	0.72	1.19	0.69	0.64	0.64	0.75	0.71	2.17	0.49	0.66	0.67	0.47	0.98	0.54	0.29	0.34	0.32	0.27	0.31	0.30	0.44
28	0.84	0.33	0.30	0.28	0.39	0.61	0.44	0.45	0.37	0.34	0.32	0.48	0.68	0.60	1.20	0.80	0.98	1.61	0.93	0.80	1.00	1.00	1.09	0.92
29	0.98	5.99	2.13	1.15	2.78	1.01	13.6	5.80<	1.52<	2.25	22.1	13.9	4.29	1.62<	1.43<	1.16<	1.16	1.38	2.09	3.26<	1.46<	136<	64.6<	11.4<
30	8.54<	4.49<	2.92	2.61	2.13	6.31	20.3	1.98	1.26	0.94	0.66	0.80	0.74	1.06	3.37	2.59	1.61	8.02	3.59	1.52	2.18	1.96	1.60	32.1

VALUES MARKED WITH (<) WERE CALCULATED FROM DATA PROVIDED BY SOLRAD 9

SOLAR X-RAYS MEASURED BY SATELLITE
SOLRAD 10 – EXPLORER 44

APRIL 1973

NAVAL RESEARCH LABORATORY 8 - 20A HOURLY AVERAGES (10^{-2} ergs/cm^2/sec)

DAY	HOUR																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	2.13	2.11	1.34	1.44	2.44	2.23	3.06	2.71	4.88	1.31	1.22	1.48	1.36	1.45	2.25	2.63	1.67	2.14	2.79	2.07	2.92	2.50	5.56	2.01
2	1.71	1.67	1.63	1.52	1.46	1.53	1.59	1.66	2.00		2.96	1.73	1.69	1.80	2.51									
3	2.96	2.11	2.91	2.73	2.67	2.93	2.73	2.74	5.54	1.86	1.78	1.66	2.01	2.24	2.96	4.22	2.96	2.96	6.16	6.30	3.41	3.18	2.73	2.49
4	1.70	1.66	1.71	1.59	1.51	2.57	1.60	1.34	1.40	2.13	1.61	2.97	7.56	2.96	2.81	1.73	1.60	1.56	1.64	1.60	1.68	1.63	1.89	3.47
5	1.49	1.48	1.46	1.39	1.42	1.34	1.32	1.34	1.35	1.37	1.44	1.40	1.41	1.39	1.38	1.38	1.29	1.27	1.22	1.44	2.70	1.46	1.59	1.34
6	1.38	1.35	1.33	1.25	1.26	1.46	1.38	1.45	1.35	1.29	1.33	1.34	1.38	1.51	1.26	1.28	1.60	3.39	3.84	1.33	1.62	1.27	1.25	1.30
7												1.21	1.19	1.30	1.28	1.28	1.43	3.43	2.54	2.85	2.87	1.81	2.50	2.98
8	3.61	2.30	4.06	5.33	4.24	3.94	4.87	6.09	5.31	3.96	2.96	5.29	4.19	3.25	5.04	3.55	3.54	4.48	4.44	4.81	4.64	4.54	4.40	4.68
9	4.95	5.35	5.49	5.54	5.88	5.73	4.37	4.93	4.65	4.93	4.44				4.06	4.12	4.15	4.91	5.36	4.86	5.71	4.09	2.96	2.92
10	4.55	23.2	8.88	6.20	5.43	5.68	3.62	3.90	3.61	4.15	5.76	4.58	9.88	12.0	10.1	5.57	4.81	5.78	2.96	5.21	2.96	4.32	3.26	2.37
11	1.78	2.03	2.99	2.41	2.47	1.64	2.04	3.00	3.33	3.67	2.96	2.75	1.87	1.81	6.51	2.65	5.61	4.44	14.5	12.4	20.1	11.2	8.68	6.02
12	4.16	2.96	2.96	2.96	3.33	1.73	1.56	1.45	1.52	1.36	1.43	1.30	1.26	1.45	1.28	1.26	1.22	1.33	1.23	1.16	1.17	1.02	1.01	1.08
13	1.37	0.97	0.99	0.95	0.94	1.78	1.07	1.34	1.18	1.35	1.03	1.12	1.43	1.69	2.35	1.90	2.04	1.85	1.75	1.51	1.62	1.62	1.45	1.27
14	1.00	0.99	0.95	1.13	0.99	0.97	1.02	1.00	1.02	2.37	1.26	1.17	0.93	0.88	4.08	1.83	1.17	0.96	1.11	0.75	0.74	0.96	1.08	0.98
15	0.90	0.76	0.83	1.25	0.84	0.84	0.87	1.81	0.83	0.95	0.94	0.92	0.88	0.92	1.19	1.42	1.56	1.77	1.41	0.93	1.19	0.95	1.24	0.87
16	0.86	0.78	0.84	1.40	1.31	1.23	1.14	2.96	5.60	1.30	1.29	1.54	1.21	1.50	0.95	1.12	1.04	1.24	0.88	1.07	0.93	0.78	0.74	0.80
17	0.83	0.85	0.73	0.98	0.89	0.85	0.97	0.90	0.75	0.73	0.94	0.86	0.75	0.90	0.90	0.82	0.81	0.90	0.69	0.77	0.68	0.67	0.70	0.70
18	0.74	0.71	0.72	0.67	0.73	0.76	0.92	1.73	1.57	1.06	2.66	2.87	0.98	0.89	1.43	1.25	0.84	2.27	0.80	1.87	1.89	0.67	0.56	0.48
19	2.36	1.67	0.49	0.46	0.46	0.39	0.41	0.47	0.46	0.67	0.48	0.60	0.57	0.56	0.46	0.48	0.46	0.72	0.62	0.52	0.55	0.46	0.46	0.49
20	0.39	0.47	0.38	0.42	0.39	0.44	0.45	0.46	0.48	0.46	0.59	0.51	0.73	0.55	0.54	0.70	0.74	0.62	0.75	0.71	0.73	0.77	0.92	0.83
21	0.82	0.73	0.76	1.15	0.87	0.91	1.26	1.49	1.49	1.37	1.37	2.19	1.50	2.58	1.49	2.02	2.87	1.61	1.66	1.37	1.21	1.12	1.29	1.18
22	1.19	1.25	1.26	1.25	1.27	1.26	1.95	1.25	1.32	1.36	2.00	1.35	1.44	1.30	4.10	5.22	2.96	2.96	3.82	2.96	3.30	5.02	4.49	1.78
23	1.60	2.53	1.66	1.67	1.40	1.36	1.29	1.31	1.30	1.45	2.12	1.61	1.32	1.54	1.61	1.91	2.44	4.44	2.96	2.90	3.09	1.76	1.68	1.68
24	1.40	1.44	1.31	1.37	1.30	1.32	1.41	1.61	2.91	2.54	1.95	1.54	1.48	1.47	3.36	1.64	1.26	1.54	1.27	2.96	1.51	1.42	1.29	1.42
25	1.35	1.51	2.56	2.07	5.07	3.37	2.44	1.64	1.57	1.43	1.53	1.47	3.39	2.04	1.31	1.47	1.66	1.66	1.28	1.25	1.29	1.28	1.13	1.17
26	1.20	1.33	1.62	1.38	1.47	2.18	14.5	7.52	1.93	1.64	1.39	1.39	1.21	1.44	1.39	1.46	1.32	1.33	1.25	8.94	28.2	2.19	1.51	3.44
27	1.54	1.59	1.49	2.25	3.37	2.43	2.24	2.15	2.67	2.72	3.76	1.81	2.07	2.21	1.66	2.59	1.77	1.30	1.40	1.42	1.37	1.54	1.36	1.48
28	2.32	1.38	1.35	1.33	1.45	1.61	1.56	1.48	1.49	1.46	1.44	1.60	2.03	1.91	2.99	2.92	2.48	3.17	3.08	2.24	2.93	3.12	2.96	2.51
29	2.96	6.23	4.29	2.96	4.72	2.87	8.28	7.04	5.78	4.53	14.2	11.5	5.81				2.87	3.18	6.61	5.38	4.16	42.9	32.7	11.5
30	7.82	5.90	4.76	4.39	4.33	5.53	17.3	4.79	2.96	2.93	2.87	2.89	2.68	2.88	5.52	5.21	4.35	6.88	6.03	4.35	4.54	4.31	3.54	17.0

SOLAR X-RAYS BY SATELLITE
SOLRAD 10 - EXPLORER 44

APRIL 1973

OUTSTANDING EVENTS

NAVAL RESEARCH LABORATORY

DAY	START TIME	0.5-3A FLUX XE-5	PEAK TIME	1-8A FLUX XE-4	PEAK TIME	8-20A FLUX XE-3	PEAK TIME	END TIME	COMMENTS
1	0812	96.00	0814	216.00	0814	148.00	0814	0824	
1	1532	63.00	1536	180.00	1537	53.00	153A	1545	OBSERVED BY SOLRAD 9
1	1706	41.00	1708	130.00	1710	40.00	1715	1717	OBSERVED BY SOLRAD 9
1	2206E	28.80	2207	144.00	2207	118.00	2209	2227	
3	0801	14.40	0802	51.50	0810	59.20	0809	0822	
3	1526	9.60	1528	58.00	152A	74.00	152A	1533	
3	1840	19.20	1846	93.40	1853	88.80	185O	1930D	
4	1155E	14.40D	1155E	90.20	1156	88.80D	1155E	1248	
6	1758	5.04	1800	41.90	1800	59.20	175A	1804	
7	190A	0.00D	1912D	43.00	190A	24.00	190A	1912	OBSERVED BY SOLRAD 9
8	0215	9.60	0216	45.10	0216	59.20	021A	0224	
8	0308	9.60	0309	67.60	0310	59.20	0309	0325	
8	0636	6.70	0641	41.00	0641	24.00D	0642D	0642	OBSERVED BY SOLRAD 9
8	0656	48.00	0702	144.00	0702	88.80	0703	0715D	
8	0808	14.40	0815	83.70	0815	88.80	081S	0824	
8	1121E	9.60D	1121E	45.10	1122	59.20D	1121E	1128	
8	1250E	4.82	1255	54.70	1251	59.20	125O	1256	
8	1418	6.13	1419	32.20	1418	59.20	142O	1428	
8	1442	4.80	1443	45.10	1444	59.20	1442	1446	
9	0339	3.07	0341	35.40	0342	59.20	0339	0347	
9	0449	4.82	0450	38.60	0449	59.20	0449	0453	
9	1334	5.60	1340	38.00	1340	29.00	134A	1349	OBSERVED BY SOLRAD 9
9	1745	101.00	1747	288.00	1747	118.00	1747	1806D	
9	1930	0.00D	1930D	51.50	1936	59.20	193O	1941D	
10	0016	216.00D	0102E	504.00	0107	326.00	011O	0315	
10	0451	5.69	0458	38.60	045A	59.20	0451	0511D	
10	0944	4.82	0945	32.20	0944	59.20	094A	0956D	
10	1020E	0.00D	1020C	49.00	1021	28.00	1027	1028	OBSERVED BY SOLRAD 9
10	1224	324.00	1228	720.00	1229	311.00	1231	1441D	MULTIPLE PEAKS
10	1654	6.35	1654	38.60	1656	59.20	1654	1719	
10	1910	38.40D	1912D	144.00	1912	104.00	1914	1924D	
10	2138E	6.35	2139	38.60D	213AE	44.40D	213AE	2143	
11	0923	9.60	0924	51.50	0925	59.20	0924	0927	
11	0951	13.00	0954	48.00	0954	24.00	0955	1000	OBSERVED BY SOLRAD 9
11	1405	216.00	1407	288.00	1406	163.00	1407	1417	
11	1622	59.00	1625	180.00	1625	53.00	1625	1629	OBSERVED BY SOLRAD 9
11	1842	1400.00	1845	2090.00	1846	429.00	1845	2320	MULTIPLE PEAKS
12	0005	18.00	0008	74.00	000A	40.00	001A	0016	OBSERVED BY SOLRAD 9
13	1353	14.40D	1355E	54.70	1357	59.20	135A	1357D	
14	1438	28.80	1438	93.40	1446	88.80	1445	1454	
16	0802	19.20	0805	77.30	0808	74.00	0811	0823	
18	0739	24.00	0740	58.00	0741	44.40	0742	0746	
18	1041	38.40	1047	144.00	104A	59.20	104A	1106	
19	0042	9.60	0042	41.90	0045	44.40	0049	0054	
22	1408E	57.60	1408	144.00	1408	88.80	1409	1421	
22	1531E	5.91D	1531E	48.30	1532	59.20	153O	1541D	
22	2151E	67.20	2155	144.00	2153	104.00	2157	2210	
24	1413	0.00D	1413C	83.70	1414	74.00	1415	1421D	
24	1924	130.00D	1931E	270.00	1932	80.00	193A	1950	OBSERVED BY SOLRAD 9
25	0423	9.60D	0436E	93.40	0429	88.80	042O	0441D	
25	1217	0.00D	1217C	32.20	1217	59.20	1222	1232D	
26	0637E	76.80	0648	288.00	0647	207.00	0652	0715	
26	1931	432.00	2002	864.00	2002	429.00	2006	2018D	
26	2021	82.00	2032	360.00D	2021E	160.00	2029	2048	OBSERVED BY SOLRAD 9
26	2305	9.60	2305	48.30	2306	59.20	2306	2310	
27	1014	0.00	1014	38.60	1015	59.20	1014	1026D	
28	1745	5.69	1746	38.60	1748	59.20	1747	1756	
29	0132	38.40	0136	144.00	0136	118.00	014O	0205	
29	0417E	19.20D	0417E	93.40	0419	88.80	0419	0428	
29	0626	216.00	0629	504.00	0631	163.00	063S	0647	
29	0716	8.90	0718	90.00	0717	53.00	071A	0749	OBSERVED BY SOLRAD 9
29	0911	4.82	0912	25.80	0912	44.40	0911	0915	
29	1035	49.00	1059	220.00	1036	80.00	1036	1119D	OBSERVED BY SOLRAD 9
29	1156E	0.00D	1206C	70.00	1200	40.00D	1206D	1206	OBSERVED BY SOLRAD 9
29	1211	6.70	1229	53.00	1213	40.00	1212	1242	OBSERVED BY SOLRAD 9
29	1841	130.00D	1845E	270.00	1844	53.00	1846	1914	OBSERVED BY SOLRAD 9
29	2144E	130.00D	2221E	1700.00	2145	400.00	2145	0201	OBSERVED BY SOLRAD 9
30	0553	139.00	0559	432.00	0558	266.00	0601	0715	
30	1406	3.94D	1425E	45.10	1412	59.20	1407	1434	
30	1522	6.35	1522	38.60	1534	59.20	1522	1542	
30	1728	216.00	1729	360.00	1729	148.00	173O	1832	
30	1838	14.40	1839	61.20	1839	59.20	183A	1848	
30	2050E	0.00D	2050C	32.20	2050	59.20	205O	2057D	
30	2302E	324.00D	2302E	720.00D	2302E	237.00	2303	2358	

SUDDEN IONOSPHERIC DISTURBANCES

APRIL 1973

DAY	UNIVERSAL TIME START	END	MAX	IMP	WIDE SPREAD INDEX	NUMBER OF STATION REPORTS BY TYPE SWF	SCNA	SEA	SPA	LF-SPA	SES	SFD	KNOWN FLARE	McMATH REGION
01	0023	0053	0030	1-	1				1				0022	12280
01	0709	0724	0712	1-	1			1			1		NF	
01	0755	0810	0800	1+	1	1		1			1		0750	12298
01	0813	0830	0816	1+	3	3	1	3			2		0811	12293
01	1209E	1242	1215U	1-	1			1					1215E	12293
01	1330	1340	1332	1-	1					1	2		NF	
01	1404	1415	1408	1-	1	1					2		1402E	12293
01	1532	1551	1536	1+	5	3		5	2	2	9		1532E	12293
01	1703	1740	1709	1-	5			1		2	7		1702	12298
01	1830	1900	1834	1-	5	1					6		1830	12280
01	2201	2313	2215	1-	5			1	2	6	7		2214E	12298
02	0951	1000	0955	1-	1						1		0947	12298
02	1325	1340	1330	1-	1			1			1		1322	12298
02	1359	1423	1410	1-	5			1			1		1353	12293
02	1425	1432	1428	1-	1			1					1426E	12293
03	0502	0637	0550	1-	1				1				0525E	12293
03	0656E	0818	0708	1-	1			1					0711E	12293
03	0757	0825	0806	2	5	2					2		0756	12293
03	0843	0900	0853	1-	1				1				0841E	12293
03	1523	1645	1532	1-	1				1		1		1526	12300
03	1837	2000	1900	1	5	1		1	1				1840	X-RAY
03	2228	2248	2236	2	3				1	1			2221	12293
04	1135	1310	1205	1-	5	3	1	2	2		3		1129	12293
04	1435	1445	1436	1-	1			1					1425	12293
04	2202	2217	2207	1-	1				1				2201	12293
05	2029	2036	2035	1-	1			1					2028E	12298
06	0807	0815	0809	1-	1						1		0805	12293
06	1809	1816	1815	1-	1			1					1759E	12293
07	1722	1724	1725	1-	1			1					1721	12306
07	1905	1954	1912	1	3			1		1			1914E	12306
07	2252	2320	2256	1-	1				1				2253	12306
08	0208	0249	0220	1-	1				1				0208	12306
08	0309	0334	0316	1-	1				1				0309	12306
08	0517	0552	0524	1-	1				1				0515	12306
08	0604	0648	0610	1-	1				1				0603	12306
08	0630	0640	0633	1-	1						1		0633E	12306
08	0657	0723	0703	1	5	3	1	2	3	1	3		0700E	12306
08	0808	0843	0817	1	5	3	1	3	3		2		0800E	12306
08	0852E	0916	0858	1	5	3	1	3	2		2		0857E	12306
08	1120	1200	1127	1-	5	2			1		3		1117	12300
08	1248	1310	1256	1-	5	2		1	2		3		1245	12306
08	1416	1428D	1428	1	5	1		1	2	1	2		1415	12306
08	1519	1546	1520	1-	1					1			1514	12300
08	1738	1756	1742	1-	3			1		1			1727	12300
08	2238	2305	2241	1-	1				1				2240E	12306
09	0126	0255	0208	1-	1				1				0204E	12300
09	1325	1500	1345	1-	1				1		1		1334	X-RAY
09	1541	1543	1545	1-	1			1					1541	12300
09	1623	1645	1626	1-	5			1	1	1	6		1621	12300
09	1746	1845	1751	1+	5	2		4	2	1	10		1751E	12306
09	1932	2030	1942	1+	5	1		4		1	5		1930	X-RAY
09	2312	2336	2316	1-	3				2				2311	12306
10	0016	0211	0115	2-	5	2			2		2		0026E	12306
10	0438	0611	0506	1-	1				1				0451	X-RAY
10	0726	0838	0750	1-	1			1					0732	12306
10	1003	1040	1006	1	3	3		2	2		1		0959	12306
10	1050	1123	1105	1-	1			1					1046E	12306
10	1225	1300	1232	3-	5	4		8	2		8		1223E	12306
10	1331	1325	1317	1-	5				1		2		1312E	12300
10	1648	1800	1705	1-	5			1	1		1		1704	12306
10	1908	2015	1914	2-	5	2		2	2	1	7		1905	12306
10	2136	2215	2140	1-	5				1		7		2134	12306
11	0327	0354	0332	1-	1				1				0327	12306
11	0626	0702	0637	1-	1				1				0623E	12306
11	0800	0810	0805	1-	1						1		0757	12306

SUDDEN IONOSPHERIC DISTURBANCES

APRIL 1973

DAY	UNIVERSAL TIME START	END	MAX	IMP	WIDE SPREAD INDEX	NUMBER OF STATION REPORTS BY TYPE SWF	SCNA	SEA	SPA	LF-SPA	SES	SFD	KNOWN FLARE	McMATH REGION
11	0922	0930	0924	1-	3	1	1		1		2		0920	12306
11	1300	1345	1307	1-	5			1	1		1		1300	12306
11	1407	1445	1410	2	5	5	2	7	3		12		1400	12306
11	1620	1650	1625	1-	5	1		2	1		7		1620	12306
11	1842	2100	1850	2	5	4	2	2	2		9		1836	12306
11	2237	2314	2255	1-	5	1	1		1				2206E	12306
11	2306	2324	2310	1-	1				1				2304	12306
12	0003	0058	0014	1-	3				2				0002	12306
12	0358	0453	0406	1-	3				2				0359	12306
12	0706	0752	0716	1-	1				1				*	
12	2210	2228	2214	1-	1				1				2212	12306
13	0509	0558	0518	1-	1				1				0509	12306
13	1205	1413	1305	1-	5			1		2	3		1201E	12306
13	1355	1500	1404	1	5	3		4	3	3	10		1350	12306
13	1726	1805	1733	1-	5				1	1	9		1715	12306
13	1900	1940	1908	1-	3					1	8		1900	12306
14	0312	0315	0314	1-	3				2	1	1		0311E	12306
14	0622	0658	0632	1-	3				2				0625	12306
14	1052	1100	1058	1-	1	1		1			1		1035	12306
14	1232	1300	1237	1-	5			1	1		2		1227	12306
14	1438	1540	1449	1	5	4	1	4	3	1	13		1437	12306
14	2137	2240	2146	1-	5				1	1	6		2137	12306
15	0329	0341	0333	1-	3				2				0331	12306
15	0657	0750	0708	1-	1						1		0658E	12306
15	0904	0925	0910	1-	1	1		1	1				0900	12306
15	1715	1800	1720	1-	5				1		9		1715	12306
15	2237	2315	2240	1-	5			2	2	4	11		2236E	12306
16	0252	0402	0303	1-	1				1				*	
16	0805	0900	0810	1	5	2	1	2	4	1	2		0802	12306
16	0958	1015	1002	1-	1						1		0955	12306
16	1306	1330	1313	1-	5				1		2		1309E	12306
16	1731	1815	1735	1-	5				1	1	1		1732E	12306
17	2249	2251	2250	1-	1			1					2251	12322
18	0738	0757	0744	1	5	3	1	2	4		2		0739	X-RAY
18	1042	1122	1052	1+	5	3	1	3	4		3		1041	X-RAY
18	1410	1500	1425	1	5	2	1	2	2	1	3		1417U	12322
19	0006	0136	0044	1-	1				1				0006	12322
19	0040	0100	0045	1-	3				2	2	2		0042	X-RAY
20	1357	1515	1430	1-	1				1		1		1405E	12322
20	1644	1659	1651	1-	1			1					*	
20	2059	2117	2108	1-	1		1						*	
21	0716	0838	0732	2-	1				1				0650	12322
21	1012	1033	1023	1-	1			1					1006	12322
21	1559	1700	1607	1-	5			1	1	2	2		1558	12322
22	1000	1018	1008	1-	1						1		0955	12322
22	1225	1245	1230	1-	1						1		1227E	12322
22	1408	1425	1412	1	5	4	1	3	3	1	12		1408E	12323
22	1501	1630	1524	1	5	1		1	2	1	8		1504	12322
22	1819	1823	1826	1-	1			1					1820	12322
22	2149	2330	2159	1	5	1		2	1	3	11		2146E	12322
23	0744E	0849	0754U	1-	1			1					0754E	12323
23	0850	0948	0912	1-	1			1					0925E	12321
23	1705	1820	1720	1-	1				1		1		1703E	12322
24	1208	1400	1227	1-	5			3			5		1314	12322
24	1413	1435	1418	1-	5	2		2	3	1	7		1412	12322
24	1924	2030	1934	1+	5	2	1	5	3	2	11		1924E	12322
25	0420	0453	0428	1-	5	2			2	2	2		0420	12322
25	0514	0550	0528	1-	1				1				0513E	12322
25	0924	0939	0926	1-	1			1					0930	12322
25	1205	1300	1221	1-	5	1		1	1		2		1210E	12322

SUDDEN IONOSPHERIC DISTURBANCES

APRIL 1973

DAY	UNIVERSAL TIME START	END	MAX	IMP	WIDE SPREAD INDEX	NUMBER OF STATION REPORTS BY TYPE SWF	SCNA	SEA	SPA	LF-SPA	SES	SFD	KNOWN FLARE	McMATH REGION
26	0630	0736	0640	1	5	4		3	3	2	4		0624	12322
26	0653E	0705	0653	1-	1		1						0628	12322
26	0839	0857	0843U	1-	1		1						0836	12323
26	1928	2200	2005	1-	5	2	2	2	2	1	8		1916	12322
26	2306	2345	2311	1-	5				2	1	6		2300	12322
27	0931	0942	0936	1-	3			1	1		1		0931	12322
27	1013	1055	1025	2	1	2	1		1		2		1011	12322
27	1201	1258	1204U	1-	1			1					1204	12323
27	1355	1413	1402	1-	1			1					1402	12323
28	0814	0823	0815	1-	1			1					0816	12323
28	1226	1257	1235U	1-	1			1					1230	12323
28	1404	1430	1410	1	5	1		1	2		6		1408E	12322
28	1455	1552	1516U	1-	1			1					1457	12323
28	1741	1855	1753	1	5			1	2	1	9		1740	12323
28	2011	2120	2015	1-	5			1	1	1	9		2012	12322
29	0134	0220	0140	1+	3	2			2				0132	12322
29	0418	0450	0422	1-	3	1			2				0351	12322
29	0626	0730	0633	2	5	4	1	3	4		2		0625E	12322
29	0952	1115	1008	2-	5	3	1	5	3		3		0910	12322
29	1045	1300	1115	1-	1				1				1044E	12323
29	1352	1500	1354	1-	1						1		1335E	12322
29	1628	1745	1637	1-	5	1		2	5		9		1628E	12322
29	1729	1713	1732	1	1					1			1719	12323
29	1840	2010	1848	2-	5	2	1	5	2	1	9		1835	12322
29	2059	2250	2106	3+	5	3		4	4	2	10		2056E	12322
30	0505	0600	0507	1-	1					1	1		0457	12323
30	0554	0650	0602	1+	5	5	1	1	3	1	3		0550	12323
30	0713	0728	0720	1-	1					1	1		0623E	12323
30	0838	0921	0911	1-	1			1					0825E	12332
30	1058	1137	1103U	1-	1			1					1102	12332
30	1300	1317D	1317	1-	1				1		1		1247	12322
30	1533	1650	1545	1-	5			1	1	1	1		1533	12332
30	1729	1900	1736	1+	5	2	2	4	3	1	8		1725	12322
30	1759	1804D	1804	1-	1				1		1		1748E	12332
30	1839	2000	1900	1-	1				1		1		1838	X-RAY
30	2014	2035	2017	1-	3						8		2006	12332
30	2054	2123	2055	1-	1		1						2050E	X-RAY
30	2253	2350	2258	2	5	2	1	2	4	2	8		2247	12322

STATIONS REPORTING FOR APRIL 1973

AAVSO (A1, A8, A17, A23, A26, A32, A34)(SEA)
(A1, A19, A21, A30, A31, A33, A36, A37, A38)(SES)
BOULDER (BO) (SCNA, SEA)
DARMSTADT (DA) (SWF)
ENKOPING (SW) (SWF, SPA)
GESASHI (LORAN-C) (GE) (LF-SPA, SES)
HERSTMONCEUX (HC) (SEA)
HIRAISO (HI) (SWF)
HOBART (TA) (SEA)
HUANCAYO (HU) (SWF)
INUBO (IN) (SPA)
JUPITER (LORAN-C) (JP) (LP-SPA, SES)
KUHLUNGSBORN (KU) (SEA, SPA)
KURE (LORAN-C) (KR) (LF-SPA, SES)
MANILA (MA) (SWF, SCNA, SPA)
MARCUS (LORAN-C) (MR) (LF-SPA, SES)
MCMATH (MC) (SWF, SCNA)
NANTUCKET (LORAN-C) (NT) (LF-SPA, SES)
NEUSTRELITZ (NU) (SWF, SCNA)
PANSKA VES (PU) (SWF, SEA, SES)
POITIERS (PO) (SEA)
PRESTON (LO) (SEA)
SAO PAULO (UM) (SPA, SES)
SOFIA (SF) (SES)
SYLT (LORAN-C) (ST) (LF-SPA, SES)
TABLE MOUNTAIN (TM) (SWF, SPA, LF-SPA)
TORINO (TN) (SPA)
UPICE (UI) (SEA)
UPOLO POINT (LORAN-C) (UP) (LF-SPA, SES)
YAP (LORAN-C) (YP) (LF-SPA, SES)

PERIODS OF NO OBSERVATIONS:

DATE	TIME (UT) and STATION
01-05	0000-2000 A36
01	0436-1249 TM
03	0553-1033 UM (17 kHz), 1008-1336 UM (16 kHz)
04	0800-0950 UM (17 kHz), 1507-1608 UM (13 kHz), 2300-2312 TM
07	2259-2400 TM
08	0000-0910 MA, 1500-1700 UM (13 kHz)
09-15	0500-2000 A34, 2200-2400 TM
10	2055-2216 TM
11	0000-0522 TM
12	0144-0440 TM, 1437-1621 MC, 2318-2326 TM
13	1400-1747 UM (17 kHz)
16-24	0500-0500 A8
16	0757-0826 UM (16 kHz)
17	1215-1338 UM (16 kHz)
18	0745-0829 UM (16 kHz), 1506-1549 UM (13 kHz), 1723-1911 UM (13 kHz)
20	0430-1246 TM, 0730-0835 UM (16 kHz), 1404-1642 UM (17 kHz), 1750-1804 TM
21	0741-0821 UM (16 kHz)
22	1419-1429 TM
23-30	0500-2400 A32
23	0900-2000 PO, 1900-1930 BO
24	0750-0851 UM (16 kHz), 1006-1200 UM (16 kHz), 1225-1327 UM (16 kHz)
25	0735-0803 UM (16 kHz)
26	0751-0852 UM (16 kHz), 2125-2129 TM
27	0741-0832 UM (16 kHz), 1400-1458 UM (17 kHz) 1600-1621 UM (17 kHz), 1711-1752 UM (17 kHz) 1900-2200 TM
28	0741-0850 UM (16 kHz), 2100-2400 A17, 2301-2400 UM (16 kHz)
29	0000-0025 UM (16 kHz), 0000-0800 A17, 0040-0155 UM (16 kHz), 0400-1415 MC
30	0756-0831 UM (16 kHz)

SID's BY McMATH REGION

APRIL 1973

DAY	80	93	98	00	06	21	22	23	32	X-RAY	UN-KNOWN	NO FP
01	2	4	3								2	
02		2	2									
03		5		1						1		
04		3										
05			1									
06		2										
07					3							
08				3	11							
09				3	2					2		
10				1	8					1		
11					10							
12					3							1
13					5							
14					6							
15					5							
16					4							1
17							1					
18							1			2		
19							1			1		
20							1					2
21							3					
22							5	1				
23						1	1	1				
24							3					
25							4					
26							4	1				
27							2	2				
28							2	4				
29							8	2				
30							3	3	5	2		

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

APRIL 1973

APR. 1973	TIMES OF OBSERVATION		STATION	EVENTS													SPECTRAL TYPE
				CENTIMETRIC BAND			DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND				
	START UT	END UT		START UT	END UT	INT.	START UT	END UT	INT.	START UT	END UT	INT.	START UT	END UT	INT.		
01	0000	1300	BOUL										0000	0130	1		CONT
	0000	0048	HARV														
			CULG							0006	0721						IIIN,W
	0308	0736	CULG							0006	0007	1					IIIG,U
			BOUL							0006.5	0007.8	2	0006.5	0007.8	2		IIIG
			CULG							0251.5	0252.5	1					IIIG
			CULG				0610.5	0611.5	1	0610.5	0613	1					IIIG
	0545	1713	WEIS							0610.6	0612.4	1					IIIG
			WEIS							0755.1	0755.6	1					IIIG
			WEIS							0759.1	0759.4	1					IIIG
	1318	2400	HARV							1339	1340	2					IIIGG
	1026	2305	SGMR										1339.2	1339.9	2		III
			WEIS							1339.3	1339.6	1					IIIG
	1230	2400	BOUL							1339.4	1340.0	2	1339.4	1340.0	2		IIIG
			BOUL							1418.3	1422.1	2	1418.3	1422.1	2		IIIGG
			SGMR										1419.8	1421.7	1		CONT
			BOUL							1423.2	1423.5	1	1423.2	1423.5	1		III
			BOUL							1429.0	1429.0	1	1429.0	1429.0	1		III
			HARV							1457	1731	1					IN
			BOUL										1503.1	1503.4	1		III
			HARV				1517	1518	1								I
			BOUL										1610	2400	1		CONT
			BOUL							1700.0	1701.5	2	1700.0	1701.5	2		IIIG
			HARV				1703	1716	3	1703	1712	3					IIIGG,U,V
			BOUL							1703.5	1703.7	1					IIIG
			BOUL							1704.6	1707.3	3	1704.6	1707.3	3		IIIG
			WEIS							1704.9	1705.7	1					IIIG
			SGMR										1705.0	1706.8	3		III
			HARV							1712.0	1732	3	1716	1732	3	II	
			BOUL							1712.9	1717.2	3	1712.4	1727.4	3	IIF	
			SGMR										1717.2	1724.2	2	II	
			BOUL							1718.6	1718.8	2	1718.6	1718.9	2		III
			BOUL							1719.9	1730.8	3	1722.2	1755.0	3	IIH	
			SGMR										1720.8	1753.0	2	II	
			BOUL							1720.7	1721.8	3	1720.7	1721.8	3		IIIG
			HARV							1737	1738	2					U
			HARV				1747	1748	2	1747	1749	1					IIIG
			HARV							1803	1804	3	1803	1834	3		IIIGG,V
			BOUL							1803.3	1804.1	3	1803.3	1834.1	3		IIIG
			SGMR										1803.3	1834.8	3		III
			BOUL							1832.2	1832.4	2	1832.2	1832.4	2		III
			BOUL							1919.9	1921.3	2	1919.1	1921.3	2		IIIG
			HARV							1920	1921	2	1920	1921	2		IIIG
			SGMR										1920.0	1921.0	2		V
			CULG							2036	2400	1					IS
	2036	2400	CULG							2036	2400	1					IIIS
			HARV							2054	2200	1					IN
			HARV							2127	2128	2					IIIG
			CULG							2127	2128	1					IIIG
			CULG							2143.5	2144	1					IIIG
			CULG							2151		2					IIIB
			CULG				2201.5	2257									IN,W
			HARV				2202	2210	1	2200	2400	1					I
			BOUL							2202.8	2210.0	3	2202.8	2210.0	3		IIIG
			CULG							2203	2209	1	2203	2216	1		IIIGG,V
			HARV							2204	2206	2	2204	2206	2		IIIG
			SGMR										2204.9	2221.4	2		IIIG
			CULG							2212	2255	2				II	
			HARV							2212.2	2222	2	2221		2	II	
			CULG							2212.5	2215	1					IIIGG
			BOUL							2212.9	2213.4	1	2212.9	2213.4	1		IIIG
			BOUL							2214.0	2220.0	3	2216.2	2230.5	3	IIF	
			BOUL							2215.5	2230.0	2	2224.5	2257.2	2	IIH	
			CULG							2220.5	2221	1					IIIG,V,U
			BOUL							2220.8	2221.8	3	2220.8	2221.8	3		III
			HARV				2221	2323	1								IN
			CULG							2221.5	2222	1					IIIG
			CULG							2256	2300.5	1					IIIGG,V
			BOUL							2257.4	2257.7	1	2257.4	2257.7	1		IIIG
			BOUL							2259.8	2302.4	2	2259.8	2332.4	2		IIIGG
			HARV							2302	2303	2					IIIGG
			CULG				2302	2303	1	2302	2303	2	2302.5	2303	1		IIIGG,V
			BOUL							2302.5	2303.9	3	2302.5	2303.9	3		IIIG
			CULG							2311		1					IIIB
			HARV							2317	2319	1					IIIG
			CULG							2317.5	2320	1	2318	2319.5	1		IIIGG,V
			BOUL							2318.0	2320.3	3	2318.0	2320.3	3		
02	0000	0130	BOUL							0000	0111.1	1	0000	0111.1	1		CONT
	0000	0050	HARV							0000	0050	1					IN
	0000	0736	CULG							0000	0736						IS,W
			CULG							0011	0736		0016	0635			IIIN,W
			CULG							0508							IIIB,U,W
	0546	0957	WEIS							0641.2	0643.5	1					IIIG
			CULG				0642	0644	1	0641	0643.5	1					IIIGG
	1317	2400	HARV							1317	1534	1					IN
	1000	1716	WEIS							1325.6	1327.5	1					IIIG
			HARV							1327	1328	2					IIIG
	1010	2306	SGMR										1341.0	1344.2	2		III
			HARV							1342	1344	1					UNCLF

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APR. 1973	TIMES OF OBSERVATION		STATION	EVENTS													SPECTRAL TYPE
				CENTIMETRIC BAND			DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND				
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT		
02			WEIS							1530.0	1629.0	1					I
			HARV							1534	1625	1					I
	1600	2400	BOUL										1600	2400	1		CONT
			HARV							1625	2145	1					IN
	2035	2400	CULG							2035	2400	1					IIIS
			CULG				2035	2400		2035	2400						IS,W
			CULG							2141	2142	2					IIIG,U
			HARV							2141		2					IIIG,U
			BOUL							2142.2	2142.4	2	2142.2	2142.4	2		III
			BOUL							2153.7	2154.1	2	2153.7	2154.1	2		IIIG
			HARV							2345	2400	1					I
03	0000	0052	HARV							0000	0051	1					I
	0000	0130	BOUL										0000	0116	1		CONT
			CULG							0000	0735	1					IIIN
	0000	0735	CULG				0000	0724	1	0000	0725	1					IN
			CULG				0116	0557									IIIN,W
			CULG							0211.5	0212.5	1					IIIG
			CULG				0244.5	0245.5	1	0244.5	0246	2					IIIG,V
			CULG				0458	0458.5	1	0458	0458.5	2					IIIG
			CULG							0501	0504.5	2					IIIGG
	0739	1716	WEIS							0747.5	0815.3	1					I
			WEIS							1110.0	1110.0	1					IIIG
			WEIS							1207.6	1208.5	1					IIIG
			WEIS							1213.9	1214.1	1					IIIG
			WEIS							1216.7	1217.3	1					IIIG
	1318	2400	HARV							1328	1605	1					IN
			WEIS							1328.8	1328.9	1					IIIB
	1330	2400	BOUL							1330	2400	1	1330	2400	1		CONT
			BOUL							1351.4	1354.4	2	1351.4	1354.4	2		IIIG
			WEIS							1351.7	1352.5	1					IIIG
	1317	2300	SGMR										1352.0	1354.1	2		V
			HARV				1523	1524	1								IN
			SGMR										1525.2	1530.0	1		CONT
			HARV							1526	1530	2					IIIGG
			WEIS							1528.3	1529.7	1					IIIG
			WEIS							1555.0	1655.0	1					I
			HARV							1605	2102	1					I
			SGMR										1633.0	1633.8	1		III
			HARV							1814	1815	2					IIIG
			SGMR										1814.4	1815.0	1		III
			HARV							1857	1900	3	1857	1900	3		IIIG,V
			SGMR										1857.2	1859.5	2		III
			BOUL							1858.2	1901.4	2	1858.2	1901.4	2		IIIG
			HARV				2003	2010	1								IN
	2035	2400	CULG							2035	2400	1					IIIS
			CULG				2035	2226	1	2035	2240	1					IS
			CULG				2056	2349	1								IIIN
			CULG				2056	2059	1	2056	2059	2	2058.5	2059	1		IIIGG,V
			BOUL							2056.4	2056.9	2	2056.4	2056.9	2		IIIG
			HARV				2058	2059	1	2056	2059	3	2056	2059	3		IIIGG,V
			BOUL							2058.4	2059.4	3	2058.4	2059.4	3		IIIG
			HARV							2102	2345	1					IN
			CULG							2121.5	2124	1					IIIGG
			BOUL							2121.9	2124.1	2	2121.9	2124.1	2		IIIGG
			HARV							2122	2124	1	2122	2124	1		IIIG
			BOUL							2144.2	2144.5	2	2144.2	2144.5	2		III
			CULG							2150	2150.5	2					IIIG
			BOUL							2150.5	2150.8	2	2150.5	2150.8	2		III
			CULG							2155		2					IIIB
			BOUL							2155.2	2155.4	1	2155.2	2155.4	1		III
			CULG							2156	2156.5	2					IIIG
			SGMR										2156.3	2215.0	2		IIIG
			HARV							2215	2216	2					IIIG,U
			CULG							2215.5	2216.5	2					IIIG
			BOUL							2215.6	2216.5	2	2215.6	2216.5	2		IIIG
			BOUL							2256.1	2256.7	2	2256.1	2256.7	2		III
			HARV							2336	2337	1					IIIG
			CULG							2347		1					IIIB,U
04	0000	0735	CULG							0000	0735	1					IIIS
	0000	0130	BOUL														
			CULG				0017.5	0735									IS,W
			CULG				0024	0337	1								IIIN
			CULG				0024	0024.5	1	0024	0024.5	1					IIIG
	0000	0053	HARV							0024	0025	2					IIIG
			CULG				0336.5	0337.5	1	0336.5	0337.5	1					IIIG
			CULG							0342.5	0344	1					IIIG,V
			CULG							0353	0735	1					IS
	0539	0656	WEIS							0550.2	1641.2	2					IN
			CULG							0721	0724	2					IIIGG,U
	0659	1720	WEIS							0814.8	0815.0	1					IIIB
			WEIS							0900.8	0902.5	2					IIIG
			WEIS							0934.5	0934.8	1					UNCLF
			WEIS							1023.1	1023.4	1					IIIG
			WEIS							1109.0	1615						IIIN,W
	1013	2309	SGMR										1154.0	1209.1	2	II	
			WEIS							1202.8	1208.8	1				II	
			SGMR										1210.0	2309.1	2		CONT
	1230	2400	BOUL							1254	2400	2	1254	2400	2		CONT

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APR. 1973	TIMES OF OBSERVATION		STATION	EVENTS														SPECTRAL TYPE
				CENTIMETRIC BAND			DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND					
	START UT	END UT		START UT	END UT	INT.	START UT	END UT	INT.	START UT	END UT	INT.	START UT	END UT	INT.			
04	1317	2400	HARV							1317	1920	1						IN
			HARV							1348	1559	1						IIIN
			HARV							1424	1426	1	1424	1426	1			IIIG
			HEIS							1424.5	1425.5	1						IIIG
			HEIS							1540.9	1541.1	2						IIIG
			HARV							1541	1542	2	1541	1542	2			IIIG
			HARV							1559	1724	1	1559	1724	1			IIIS
			HARV							1724	2316	2	1724	2201	1			IIIS
			HARV				1819	1820	2	1819	1820	3						IIIG
			HARV				1834	2132	2									IN
			HARV			1	1842	1843	2	1842	1843	2						IIIG
			HARV							1920	2400	1						I
			HARV							1922	1923	3	1922	1923	3			IIIG
	2035	2400	CULG							2035	2400	2						IIIS
			CULG							2035	2400	1						IS,CONT
			CULG				2037.5	2400	1									IIIN
			HARV							2100	2101	2	2100	2101	2			IIIGG
			CULG							2100.5	2101.5	2						IIIG,V
			HARV				2201	2207	2	2201	2207	2						IIIGG
			CULG				2201.5	2203	2	2201.5	2203	2						IIIG,U
			HARV							2211	2212	2						IIIGG
			CULG							2211.5	2212	2						IIIG
			CULG							2315.5	2319	2						IIIGG,V
			HARV							2316	2319	2						IIIGG,U
			HARV				2345	2347	2									IIIGG
05	0000	0054	HARV							0000	0054	1						I
	0000	0130	BOUL							0000	0117	2	0000	0117	2			CONT
			CULG				0000	0724	1									IN
			CULG							0000	0735	2						IS,CONT
	0000	0735	CULG							0000	0735	2						IIIS
			CULG				0015	0242	1									IIIN
			HARV							0033	0034	2						IIIGG
			CULG							0033.5	0034.5	2						IIIG
			CULG							0105.5	0735	1						N,RS,DP
			CULG							0238	0240.5	3	0238	0240.5	2			IIIG,V
			CULG							0241.5	0243	3	0241.5	0243	2			IIIGG,V
	0535	1537	HEIS							0547.0	1604.7	1						IS
			HEIS							0600.8	1703.0	1						IIIN
			HEIS							0703.7	0704.3	1						IIIG
			HEIS							0813.7	0814.8	1						IIIG
			HEIS							0840.0	0840.8	1						IIIG
	1029	2310	SGMR										1029.0	2310.0	2			CONT
	1230	2400	BOUL							1240.5	2400	2	1240.5	2400	2			CONT
			HEIS							1247.2	1247.3	1						IIIB
	1300	2400	HARV							1300	2400	1						I
			HARV							1324	1546	1						IIIN
			HARV							1331	1332	2						IIIG
			HEIS							1331.5	1332.1	2						IIIG
			SGMR										1331.5	1332.2	3			III
			HARV										1456	1546	1			IIIN
			HARV							1546	1645	1	1546	1645	1			IIIS
			HARV							1629	1630	3	1629	1630	3			IIIG
	1541	1721	HEIS							1629.4	1629.6	2						IIIG
			HARV				1643	1646	1									IIIG
			HARV							1645	2040	2	1645	2040	2			IIIS
			HARV				1910	1916	1									I
			HARV							2034	2036	3	2034	2036	3			IIIGG
			CULG							2035	2400	2						IS
			CULG				2035	2400	1									IN
	2035	2400	CULG							2035	2400	2						IIIS
			HARV							2040	2302	1	2040	2231	1			IIIS
			CULG							2101	2344	1						N,RS,DP
			CULG										2144	2343	1			IIIN
			HARV							2147	2149	3	2147	2149	3			IIIG,V
			CULG				2147.5		1	2147	2147.5	2						IIIG
			CULG							2148	2149	2						IIIG,V
			HARV							2303	2348	1						IIIN
			BOUL							2340.9	2342.6	2	2340.9	2342.6	2			IIIG
			HARV				2341	2343	1	2342	2344	2						IIIGG
			CULG							2342	2343	2	2342	2343	2			IIIG,V
06			CULG							0000	0735	1						IS
	0000	0735	CULG							0000	0735	2						IIIS
	0000	0130	BOUL							0000	0118.5	2	0000	0118.5	1			CONT
	0000	0055	HARV							0002	0038	1						IN
			HARV							0010	0011	2						IIIG
			CULG							0010.5	0011.5	2						IIIG
			CULG							0048.5	0712	1						N,RS,DP
			CULG				0050	0735										IN,W
			CULG							0339	0340	2						IIIG,V
			CULG							0427	0428	2						IIIG,V,U
			CULG							0542	0543	2						IIIG
	0531	1722	HEIS							0542.4	0543.9	1						IIIG
			CULG				0543	0545	1	0543.5	0548	2						IIIGG
			CULG				0547	0548.5	2									UNCLF
			HEIS							0547.3	0548.3	2						UNCLF
			HEIS							0547.5	0547.6	1						IIIG
			CULG							0650.5	0700.5	2						IIIGG,V
			HEIS							0658.8	0659.7	2						IIIG

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				CENTIMETRIC BAND			DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND				
	START UT	END UT		START UT	END UT	INT.	START UT	END UT	INT.	START UT	END UT	INT.	START UT	END UT	INT.		
06			WEIS							0716.4	0716.9	1					IIIG
			CULG				0716.5	0717	1								IIIG
			WEIS							0806.1	0806.8	2					IIIG
			WEIS							0851.7	0852.0	2					IIIB
	1024	2311	SGMR										1024.0	2311.0	1		CONT
			SGMR										1134.8	1135.1	2		III
			WEIS							1134.8	1135.0	2					IIIG
	1230	2400	BOUL							1235	2400	1	1235	2400	1		CONT
	1301	2400	HARV							1301	1400	1					I
			HARV							1403	1629	1					IN
			HARV				1516	1756	1								IN
			BOUL							1517.2	1517.6	2	1517.2	1517.6	2		III
			HARV							1522	2024	2	1522	2024	2		IIIN
			BOUL							1522.2	1528.8	2	1522.2	1528.8	2		IIIG
			HARV							1614	1616	3	1614	1616	3		IIIGG,V
			BOUL							1614.1	1616.4	2	1614.1	1616.4	2		IIIG
			WEIS							1614.5	1615.8	1					IIIG
			SGMR										1614.5	1624.8	2		IIIG
			WEIS							1622.9	1623.5	1					IIIG
			BOUL							1622.9	1624.7	2	1622.9	1624.7	2		III
			HARV							1623	1624	3	1623	1624	3		IIIG,V
			BOUL							1812.9	1815.5	3	1812.9	1815.5	3		IIIG
			HARV							1813	1815	3	1813	1815	3		IIIGG,V
			SGMR										1813.0	1825.0	3		IIIG
			BOUL							1817.6	1818.1	2	1817.6	1818.1	2		III
			BOUL							1818.3	1818.5	2	1818.3	1818.5	2		III
			BOUL							1822.4	1823.6	1	1822.4	1823.6	1		III
			BOUL							1823.7	1825.2	2	1823.7	1825.2	2		IIIG
			HARV				2017	2020	2	2017	2020	3	2018	2020	3		IIIGG,V
			BOUL							2018.5	2020.2	2	2018.5	2020.2	2		IIIG
			SGMR										2018.6	2019.8	2		III
	2122	2400	CULG							2126.5	2354.5						IIIN,W
			CULG							2206	2400						IS,W
			BOUL							2340.7	2341.8	2	2340.7	2341.8	2		IIIG
			CULG							2341	2342	1					IIIG
			CULG							2354.5		1					IIIB
07			CULG							0000	0401						IN,W
	0000	0130	BOUL										0000	0112.0	1		CONT
	0000	0734	CULG				0022.5	0652		0000	0708						IIIN,W
			BOUL							0025.9	0027.0	2	0025.9	0027.0	2		IIIG
	0000	0058	HARV							0026	0027	2					IIIG
			CULG				0026	0027	1	0026	0027	2	0027		2		IIIG
			BOUL							0029.4	0031.4	1	0029.4	0031.4	1		IIIG
			CULG							0045	0045.5	1					IIIG
			CULG				0123.5	0125	1	0123.5	0125.5	2	0123.5	0124.5	1		IIIGG
			CULG							0207	0208	1					IIIG,U,V
			CULG							0224	0224.5	1					IIIG
			CULG				0324	0325.5	1	0324	0325.5	1					IIIG
			CULG							0521	0521.5	2					IIIG
			CULG				0526.5	0528.5	1	0526.5	0528.5	1					IIIGG
	0958	2312	SGMR										1138.0	1150.8	1		IIIG
	1230	1700	BOUL							1326.4	1326.9	1	1326.4	1326.9	1		III
			BOUL							1331.6	1345.0	1	1331.6	1345.0	1		IIIG
			BOUL							1355.6	1356.2	1	1355.6	1356.2	1		IIIG
			BOUL							1403.5	1403.5	1					III
			BOUL										1418.2	1418.4	1		III
	1301	1722	WEIS							1428.5	1613.5	1					IIIG,N,W
			BOUL							1428.6	1429.1	2	1428.6	1429.1	2		IIIG
			SGMR										1428.6	1502.2	2		IIIG
			BOUL							1500.8	1503.2	2	1500.8	1503.2	2		IIIG
	1300	2400	HARV							1501	1614	2	1501	1614	2		IIIN
			BOUL										1503.3	1708	1		CONT
			BOUL							1526.2	1526.4	1	1526.2	1526.4	1		III
			BOUL							1544.0	1546.1	2	1544.0	1546.1	2		IIIG
			SGMR										1544.2	1544.7	2		IIIG
			BOUL							1553.5	1555.5	1	1553.5	1555.5	1		IIIG
			BOUL							1613.4	1613.9	2	1613.4	1613.9	2		III
			SGMR										1613.4	1617.0	1		III
			BOUL										1652.1	1654.4	1		IIIG
			HARV							1720	1725	2	1720	1725	2		IIIG
			SGMR										1720.3	1804.1	2		IIIG
			HARV				1730	1731	2								IIIGG
			BOUL							1740.6	1745.0	2	1745.6	1745.0	2		IIIG
			HARV				1743	1744	1	1742	1745	3	1742	1745	3		IIIG,V
			HARV							1800	1801	3	1800	1801	3		IIIG
			BOUL										1800.6	1831.2	1		III
			BOUL										1803.6	1804.1	1		III
			HARV							1804		3	1804		3		IIIG
			HARV							1903	1905	3	1903	1905	3		IIIG,V
			SGMR										1903.0	1905.4	2		IIIG
			BOUL							1903.0	1903.3	1	1903.0	1903.3	1		III
			BOUL										1916.7	1916.8	1		III
			SGMR										1916.8	1917.0	2		III
			HARV							2019	2020	2	2019	2020	2		IIIG
			SGMR										2019.2	2048.0	2		IIIG
	2000	2400	BOUL							2019.3	2020.0	1	2019.3	2020.0	1		IIIG
	2034	2400	CULG							2034	2400						IS,W
			HARV				2036	2037	1	2036	2037	2					IIIG
			CULG				2036.5	2157		2036.5	2400						IIIN,W

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APR. 1973	TIMES OF OBSERVATION		STATION	EVENTS													SPECTRAL TYPE
				CENTIMETRIC BAND			DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND				
	START UT	END UT		START UT	END UT	INT.	START UT	END UT	INT.	START UT	END UT	INT.	START UT	END UT	INT.		
07			CULG				2036.5	2037	1	2036.5	2037	1					IIIG
			BOUL							2036.6	2036.7	1	2036.6	2036.7	1		III
			CULG							2040	2040.5	1					IIIG
			HARV							2040		3	2040		3		IIIG
			BOUL							2040.0	2040.5	1	2040.0	2040.5	1		III
			CULG							2047.5	2048	1					IIIG
			BOUL							2047.8	2048.0	1	2047.8	2048.0	1		III
			HARV							2147	2148	2	2148		1		IIIG
			CULG							2147.5	2148.5	1					IIIG
			BOUL							2147.9	2148.5	1	2147.9	2148.5	1		III
			CULG							2155.5	2156.5	1					IIIG
			BOUL							2155.7	2156.2	1	2155.7	2156.2	1		
08	0000	0130	BOUL														
	0000	0734	CULG							0000	0734	1					IS
			CULG							0000	0115						IIIS,W
	0000	0100	HARV							0032	0052	1					IN
			CULG							0115	0734						IIIN,W
			CULG				0634	0636	1								IIIG
			CULG				0638.5	0641.5	1								IIIG
			CULG				0648	0649.5	1	0648	0649.5	1					IIIG
	0533	1722	WEIS							0648.2	0649.1	1					IIIG
			WEIS				0901.8	0901.9	1								IIIG
			WEIS							0950.4	1345.0	2					IS
	0958	2313	SGMR										0958.0	2313.0	1		CONT
			WEIS							1058.9	1534.2	1					IIIG
			WEIS							1102.5	1102.8	2					IIIG
			WEIS							1231.7	1232.3	1					IIIG
			SGMR										1232.0	1232.5	2		III
	1230	2400	BOUL							1250	1648	1	1250	1648	1		CONT
	1301	2400	HARV							1301	1400	2					IC
			HARV							1308	1320	2					IIIS
			WEIS				1330.4	1330.5	2								IIIG
			HARV							1339	1617	1					IIIN
			WEIS							1358.5	1400.6	1					IIIG
			SGMR										1359.0	1401.8	2		IIIG
			HARV							1400	1640	1					I
			HARV				1435	1437	2	1435	1436	2					IIIGG
			WEIS							1435.3	1435.7	1					IIIG
			BOUL							1435.6	1436.2	2	1435.6	1436.2	2		III
			HARV				1443	1446	3	1443	1444	3	1443	1444	3		IIIGG,V
			WEIS							1443.1	1444.1	3					IIIG
			SGMR										1443.2	1444.8	2		V
			BOUL							1443.8	1444.9	2	1443.8	1444.9	2		IIIG
			HARV				1518		1	1518	1519	1					IIIG
			HARV							1640	1742	1					IN
			HARV				1737	1739	2	1737	1739	3					IIIGG
			SGMR										1737.8	1740.1	2		IIIG
			BOUL							1737.2	1740.4	2	1737.2	1740.4	2		IIIG
			HARV				1749	1751	1	1748	1752	2				IV	
			HARV							1830	2029	1	1830	2029	1		IIIN
	2034	2400	CULG				2034	2400	1	2034	2400	1					IS,CONT
			CULG							2109.5	2335						IIIN,W
			CULG				2326.5	2327.5	1	2326	2328	1					IIIG
			BOUL							2326.5	2328.4	2	2326.5	2328.4	2		IIIG
			CULG				2330	2331	1	2330	2332	1	2330.5		1		IIIG
			HARV				2330	2331	1	2330	2331	2					IIIGG
			BOUL							2330.2	2332.2	2	2330.2	2332.2	2		IIIG
09	0000	0734	CULG				0000	0545		0000	0545						IS,W
	0000	0102	HARV							0005	0056	1					IN
	0000	0130	BOUL							0023.5	0038.9	1	0023.5	0038.9	1		CONT
			CULG				0032	0420		0023	0601						IIIN,W
			CULG				0033	0038	1	0033	0038	2					IIIGG
			HARV				0033	0038	1	0033	0038	2					IIIGG
			BOUL							0033.4	0037.7	2	0033.4	0033.7	2		IIIGG
			CULG				0207.5	0208	1	0207.5	0208	1					IIIG
			CULG							0342	0342.5	1					IIIG
			CULG							0458	0501	1					IIIG
	0533	0946	WEIS							0536.5	1702.3	2					IN
			CULG				0545	0734	1	0545	0734	2					IS,CONT
			CULG							0601	0734	1					IIIS
			CULG							0721.5	0724.5	1					IIIG,V
	0941	2318	SGMR										0941.0	1525.9	1		CONT
	0951	1727	WEIS							1020.3	1637.7	1					IIIG,W
			WEIS							1031.2	1032.1	1					IIIG
			WEIS							1058.5	1059.8	2					IIIG
			WEIS				1117.7	1117.8	1								IIIG
			WEIS							1206.8	1209.4	2					IIIG
			WEIS							1222.1	1223.4	3					IIIG
			SGMR										1222.5	1223.2	2		III
			SGMR										1234.4	1235.1	2		III
			WEIS							1234.4	1235.8	1					IIIG
	1230	2400	BOUL							1240	2400	2	1240	2400	2		CONT
			WEIS							1251.6	1252.1	2					IIIG
	1301	2400	HARV							1301	2020	1					I
			HARV				1310	1311	3								IIIG
			WEIS							1310.7	1310.9	2					IIIG
			BOUL							1313.7	1316.5	1	1313.7	1316.5	1		III
			WEIS							1313.8	1316.5	2					IIIG

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				CENTIMETRIC BAND			DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT.	START UT	END UT	INT.	START UT	END UT	INT.	START UT	END UT	INT.	
09			SGMR										1313.9	1317.1	3	V
			HARV				1315	1316	3	1314	1317	2	1314	1315	1	IIIGG
			HARV				1339	2300	1							IN
			HARV				1432	1433	2	1432	1433	2				IIIGG
			WEIS							1432.1	1432.5	2				IIIG
			HARV				1443	1446	2	1443	1444	2				IIIG
			BOUL							1444.9	1445.3	1	1444.9	1445.3	1	III
			HARV				1448	1449	2	1448	1449	3	1448	1449	3	IIIG
			WEIS							1448.8	1449.3	1				IIIG
			SGMR										1449.0	1453.0	3	IIIG
			HARV				1452	1453	3	1452	1453	3	1452	1453	1	IIIGG
			WEIS							1452.1	1452.9	2				IIIG
			BOUL							1452.2	1452.9	1	1452.2	1452.9	1	IIIG
			HARV				1513	1518	1							IIIGG
			HARV				1542	1549	3	1542	1549	3	1543	1544	3	IIIGG,V
			WEIS							1542.1	1544.1	3				IIIG
			SGMR										1543.0	1545.0	3	V
			BOUL							1543.2	1544.3	2	1543.2	1544.3	2	III
			WEIS							1548.6	1722.1	1				IIIG,N
			HARV				1619	1621	2	1619	1620	2				IIIG
			HARV				1622	1627	3	1623	1627	3	1623	1625	3	IIIGG,V
			SGMR										1623.0	1625.6	3	V
			WEIS							1623.4	1624.8	3				IIIG
			BOUL							1623.7	1625.0	3	1623.7	1625.0	3	III
			HARV				1629	1700	2							IIIN
			HARV				1703	1705	3	1703	1704	3				IIIGG
			WEIS							1703.1	1703.9	2				IIIG
			HARV				1710	1715	2	1712		2				IIIGG,RS
			HARV				1721	1723	3	1721	1723	3				IIIGG
			HARV				1725	1728	1							IIIGG
			HARV				1730	1741	3	1732	1739	2	1732	1733	3	IIIGG
			SGMR										1732.1	1749.8	2	IIIG
			HARV				1743	1802	3	1743	1750	3	1743	1750	3	IIIGG,V
			HARV				1803	1911	2	1809	1838	2				IIIN
			HARV				1921	1923	2	1921	1923	3	1922	1923	3	IIIG
			SGMR										1922.7	1923.2	2	III
			HARV				1932	1937	2	1932	1937	2	1936	1937	1	IIIGG
			HARV							2020	2400	1				IN
			HARV				2027	2030	2	2027	2030	2	2029	2030	1	IIIGG
			SGMR										2029.2	2029.8	1	III
			CULG							2034	2400	1				IS,CONT
	2034	2400	CULG				2034	2230								IS,W
			CULG							2044.5	2400	1				IIIS
			CULG				2053	2327	1							IIIN
			HARV				2113	2116	3							IIIGG
			CULG				2113.5	2116.5	2							UNCLF
			CULG				2122.5	2124.5	1	2122.5	2126	1				IIIG
			CULG							2125.5		1				IIIB,U
			HARV				2143	2144	2							IIIG
			CULG				2234.5	2235.5	1	2234.5	2235.5	1				IIIG
			CULG				2254.5	2255	1	2254.5	2255	1				IIIG
			HARV				2255		1	2255		3				IIIG
			CULG							2257.5	2258	1	2257.5	2258.5	1	IIIG,V
			HARV							2302	2308	2				IIIG
			HARV				2310	2311	2	2310	2311	2				IIIGG
			CULG				2310	2311	2	2310	2311.5	2				IIIG,V
			CULG				2314	2315	2	2314	2315	2				IIIG,U
			HARV				2314	2317	3	2314	2318	3				IIIGG
			CULG				2315	2318	1	2315	2318	2				IIIGG,V
			HARV							2323	2327	2				IIIG
			CULG							2323.5	2324.5	1				IIIG
10			CULG							0000	0225					IIIS,W
	0000	0734	CULG							0000	0410	1				IS,CONT
			CULG				0000	0727								IIIN,W
	0000	6103	HARV							0000	0103	1				I
	0000	0130	BOUL							0000	0130	1	0000	0130	1	CONT
			CULG							0011	0011.5	1				IIIG
			HARV				0020	0022	1	0020	0021	2				IIIG
			BOUL							0020.8	0127.6	3	0020.8	0127.6	3	IIIN
			CULG				0021	0021.5	1	0020.5	0021.5	2	0020.5	0021.5	1	IIIG,V
			CULG				0022	0734								IN,W
			HARV				0023	0036	3	0034	0036	2				IIIGG
			CULG							0028	0028.5	1	0028	0028.5	1	IIIB
			CULG				0029	0033	1	0029	0032	1	0029	0030	1	IIIGG
			CULG				0034	0036	1	0034	0036	1				IIIGG
			CULG							0036.5	0038	1	0037		1	IIIG
			CULG				0041	0042	1							IIIG
			HARV				0041	0100	3	0041	0052	3				IIIGG
			CULG							0043.5	0044.5	1	0043.5	0044.5	1	IIIG,V
			CULG				0045	0049	1	0045	0052	2				IIIGG
			CULG				0049	0105	1							FAST DRIFT
			CULG							0107.5	0108	1				IIIG
			CULG							0109.5	0110	1	0109.5	0110	1	IIIG,V
			CULG				0127		1	0127		1	0127		1	IIIB,V
			CULG							0131		1	0131		1	IIIB
			CULG				0134	0242	2							UNCLF,P
			CULG							0225	0734	1				IIIN
			CULG				0246	0246.5	1							FAST DRIFT
			CULG							0321	0321.5	1				IIIG

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				CENTIMETRIC BAND			DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND				
	START UT	END UT		START UT	END UT	INT.	START UT	END UT	INT.	START UT	END UT	INT.	START UT	END UT	INT.		
10			CULG							0336.5	0337	1	0336.5	0337	1		IIIG
			CULG				0346	0346.5	2	0346	0346.5	1					IIIG
			CULG							0410	0734	1					IS
	0522	1705	WEIS							0532.8	1647.9	1					IN
	1710	1730	WEIS							0940.5	1521.7	1					IIIN
			WEIS							1000.9	1008.7	2					IIIGG
			WEIS							1014.0	1056.9	1					IIIG,N
	0947	2314	SGMR										1054.5	1056.0	1		III
			SGMR										1146.0	1147.5	1		IIIG
			SGMR										1221.0	1233.0	3	IV	
			WEIS							1222.5	1249.0	3					IIIGG,CONT
			WEIS							1228.5	1232.1	3				IV	
			SGMR										1233.0	1331.0	2		CONT
	1400	2400	BOUL										1241.0	1241.5	1		III
	1301	2400	HARV							1301	1329	1					I
			HARV							1302	1305	2					IIIGG
			WEIS							1303.4	1312.6	3					IIIGG,CONT
			HARV				1304	1313	3	1306	1313	3				IVP	
			BOUL										1304.5	1337.2	1		IIIG
			WEIS							1309.5	1312.3	3				IV	
			HARV							1310	1313	2	1310	1313	1		IIIGG
			BOUL							1310.5	1312.8	1	1310.5	1312.8	1		IIIG
			HARV							1329	1420	1					IN
			BOUL							1330.9	1400.0	1	1330.9	1400.0	1	IV	
			SGMR										1331.0	1730.0	2	IV	
			HARV				1347	1442	1								IIIN
			BOUL							1400.0	1815	2	1400.0	1815	2	IV	
			HARV							1420	2400	1					I
			SGMR										1730.0	2300.0	1		CONT
			BOUL							1815	2400	1	1815	2400	1		CONT
			SGMR										1826.9	1827.5	2		III
			HARV				1827	1828	1	1827	1828	3	1827	1828	3		IIIG
			BOUL							1907.2	1920.5	3	1907.2	1920.5	3		IIIGG
			HARV				1908	1917	3	1908	1919	3	1908	1919	3		IIIGG
			SGMR										1908.2	1917.8	2		V
			HARV							1928	1929	1	1928	1929	1		IIIG
	2033	2400	CULG							2033	2400	2					IS,CONT
			CULG				2033	2248.5									IN,W
			CULG							2041	2400						IIIN,W
			CULG							2041	2042	1					IIIG
			HARV							2041	2042	3	2041	2042	3		IIIG
			SGMR										2041.2	2041.8	2		III
			HARV				2146	2147	1	2146	2147	1					IIIG
			CULG							2146.5	2147	1					IIIG
			CULG							2237	2238	1					IIIG
			CULG							2312		1					IIIG
11	0000	0656	CULG							0000	0656	1					IS
	0000	0104	HARV							0000	0054						I
	0000	0138	BOUL							0000	0130	1	0000	0130	1		CONT
			CULG							0014	0656						IIIN,W
			CULG				0015	0433									IN,W
			CULG							0221	0221.5	1	0221	0221.5	1		IIIG
			CULG							0257	0302	1					IIIGG
			CULG							0326	0329	2	0326	0328	1		IIIGG,V
			CULG							0331	0334.5	1					IIIG
			CULG							0351	0351.5	1					IIIG
			CULG				0354	0355	1	0354	0355	1					IIIG
			CULG				0540	0543	1	0540	0543	1					IIIGG
			CULG							0626.5	0627.5	1					IIIG
			CULG							0631.5	0632	1					IIIG
			CULG							0650	0659	2					IIIGG
	0520	1732	WEIS							0654.4	0659.3	2					IIIG
			WEIS							1044.6	1044.8	1					IIIG
			WEIS							1146.8	1147.0	1					IIIG
	1001	2316	SGMR										1146.9	1147.2	2		III
			WEIS							1204.8	1207.3	1					IIIG
			SGMR										1207.5	1415.0	1		CONT
			WEIS							1227.2	1227.8	1					IIIG
			WEIS							1231.3	1231.5	1					IIIG
			WEIS							1257.3	1307.1	2					IIIGG
			SGMR										1257.8	1307.3	2		IIIG
	1230	2400	BOUL							1257.8	1258.1	1	1257.8	1258.1	1		III
			BOUL							1300.1	1307.5	1	1300.1	1307.5	1		IIIGG
	1301	2400	HARV							1301	1338	1					I
			HARV				1302	1308	1	1301	1308	2	1301	1305	2		IIIGG
			BOUL							1320	1345	1	1320	1345	1		CONT
			HARV							1340	1700	1					IN
			WEIS							1340.4	1340.8	1					IIIG
			HARV							1411	1414	2	1412	1414	2		IIIGG
			WEIS							1411.4	1413.5	1					IIIG
			SGMR										1412.2	1413.7	3		III
			BOUL							1412.2	1413.8	2	1412.2	1413.8	2		III
			BOUL							1610.3	1900.0	1	1610.3	1900.8	1		CONT
			BOUL							1616.3	1616.7	2	1616.3	1616.7	2		IIIG
			SGMR										1616.4	1617.8	1		III
			HARV				1621	1623	2								I
			BOUL							1638.5	1639.4	2	1638.5	1639.4	2		IIIG
			HARV							1641	1642	2	1641	1642	3		IIIG
			BOUL							1641.1	1641.9	2	1641.1	1641.9	2		IIIG

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APR. 1973	TIMES OF OBSERVATION		STATION	EVENTS												SPECTRAL TYPE
				CENTIMETRIC BAND			DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT.	START UT	END UT	INT.	START UT	END UT	INT.	START UT	END UT	INT.	
11			SGMR										1641.3	1657.9	2	IIIG
			HARV							1653	1654	2	1653	1654	2	IIIG
			HARV							1657	1658	3	1657	1658	3	IIIG,V
			WEIS							1657.1	1657.5	1				IIIG
			BOUL							1657.3	1657.8	2	1657.3	1657.8	2	III
			BOUL							1728.0	1728.8	2	1728.0	1728.8	2	IIIG
			SGMR										1728.4	1728.8	2	III
			HARV							1834	1837	3	1834	1837	3	IIIGG,V
			BOUL							1834.4	1837.2	3	1834.4	1837.2	3	IIIG
			SGMR										1835.0	1851.8	2	IIIG
			BOUL							1840.6	1852.2	3	1840.6	1852.2	3	IIIGG
			HARV				1842	1851	3	1840	1852	3	1840	1852	3	IIIGG,V,U
			HARV				1853	1854	1	1852	2105	1				IN
			BOUL							1900.0	2400	2	1900.0	2400	2	IV
			HARV				1924	1948	1							IVP N
			SGMR										1927.0	2130.0	2	CONT
			HARV				1948	2004	2	1948	2004	2				IVP
			BOUL							1950.9	1951.2	2	1950.9	1951.2	2	III
			HARV							1951		3	1951		3	IIIG
			BOUL							1951.6	1952.1	2	1951.6	1952.1	2	III
			BOUL										1953.3	1953.7	2	III
			HARV							1954	2001	2	1956	2011	2	II
			BOUL							1954.2	1954.7	2	1954.2	1954.7	2	III
			BOUL							1955.5	2005.5	2				IIH
			BOUL										1956.6	2035.5	2	IIF
			HARV				2004	2109	3	2004	2102	3				IVP ,RS
			HARV							2023	2029	2	2023	2028	2	IIIGG
			HARV							2230	2400	1				IN
	2248	2400	CULG							2248	2400	1				IS,CONT
			CULG							2302.5	2303.5	1				IIIG
			BOUL							2302.5	2303.6	2	2302.5	2303.6	2	IIIG
12	0000	0130	BOUL							0000 1	0110	1	0000	0110 1	1	CONT
	0000	0733	CULG							0000	0055	1				IS
	0000	0105	HARV				0004	0005	1							I
			CULG							0055	0148					IN,W
	0517	1153	WEIS							0954.0	1002.5	1				I,DC
	1001	2318	SGMR													
	1156	1733	WEIS													
	1300	2400	HARV													
	1230	2400	BOUL										1318.7	1318.8	1	III
	2033	2400	CULG													
13	0000	0733	CULG													
	0000	0107	HARV													
	0000	0130	BOUL													
	0518	1737	WEIS													
	0957	2319	SGMR													
	1236	2400	BOUL													
	1301	2400	HARV				1354	1355	1							IIIG
	2032	2400	CULG							2038		1				IIIB
14	0000	0733	CULG													
	0000	0109	HARV													
	0000	0130	BOUL													
	0514	0750	WEIS													
	0850	1738	WEIS													
	1003	2320	SGMR													
	1230	2400	BOUL													
	1301	2400	HARV													
	2032	2400	CULG							2103.5		1				IIIB
15	0000	0732	CULG													
	0000	0111	HARV													
	0000	0200	BOUL													
	0515	1630	WEIS													
	0933	2321	SGMR													
	1230	2400	BOUL													
	1301	2400	HARV													
	1655	1736	WEIS													
	2032	2400	CULG													
16	0000	0111	HARV													
	0000	0200	BOUL													
	0000	0732	CULG							0136.5	0137.5	1				IIIG
			CULG							0405		1				IIIB
	0514	1735	WEIS													
	0929	2322	SGMR													
	1230	2400	BOUL													
	1301	2400	HARV													
	2032	2151	CULG							2139		1				IIIB
	2203	2400	CULG													
17	0000	0732	CULG													
	0000	0112	HARV													
	0000	0200	BOUL													
	0512	1219	WEIS													
	1227	1736	WEIS													
	1301	2400	HARV													
	1230	2400	BOUL										1900.0	1900.3	1	III

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APR. 1973	TIMES OF OBSERVATION		STATION	EVENTS														SPECTRAL TYPE
				CENTIMETRIC BAND			DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND					
	START UT	END UT		START UT	END UT	INT.	START UT	END UT	INT.	START UT	END UT	INT.	START UT	END UT	INT.			
17			BOUL										1902.4	1903.1	1			III
	0938	2323	SGMR										1902.7	1903.0	1			III
	2031	2400	CULG							2235.5	2238							IIIG,W
			BOUL										2235.6	2238.2	1			IIIG
			CULG							2256	2253	1						IIIGG,V
			BOUL							2250.0	2252.3	2	2250.0	2252.3	2			III
			BOUL										2252.6	2252.9	1			III
			BOUL										2253.2	2253.6	1			III
18	0000	0200	BOUL															
	0000	0113	HARV															
	0000	0732	CULG				0054.5	0055.5										IIIG,W
			CULG							0054.5	0056	1						IIIG
			CULG							0335.5	0337	1						IIIG
			CULG							0409	0535							IN,W
			CULG							0445	0448							IIIG,W
			CULG							0453								IIIB,W
	0512	1737	HEIS							1213.1	1213.6	1						IIIG
	0950	2324	SGMR										1213.2	1225.7	2			IIIG
			HEIS							1224.5	1225.1	1						IIIG
	1200	2400	BOUL							1224.7	1225.8	1	1224.7	1225.8	1			III
			BOUL							1437.6	1437.8	1	1437.6	1437.8	1			III
			SGMR										1437.9	1527.0	1			IIIG
			BOUL										1441.9	1442.7	1			III
			BOUL							1444.7	1445.0	1	1444.7	1445.9	1			III
			BOUL										1445.7	1446.2	1			III
			BOUL							1527.5	1527.8	1	1527.5	1527.8	1			III
			BOUL										1530.5	1530.9	1			III
			BOUL										1532.6	1533.0	1			III
	1301	2400	HARV				1652	1654	1									IIIG
			BOUL										1654.2	1654.8	1			III
			BOUL							1715.9	1717.5	2	1715.9	1717.5	2			III
			HARV							1716		3	1716		3			IIIG
			SGMR										1716.0	1716.6	2			III
			BOUL										1842.8	1843.0	1			III
			HARV							1848	2209	1	1848	2239	1			IIIN
			BOUL							1919.6	1919.9	2	1919.6	1919.9	2			III
			BOUL										2001.2	2001.4	1			III
			BOUL										2009.5	2010.0	1			III
			BOUL							2027.1	2027.9	2	2027.1	2027.9	2			IIIG
			SGMR										2027.4	2027.7	1			III
			BOUL							2029.3	2029.5	1	2029.3	2029.5	1			III
	2031	2400	CULG							2034.5	2400							IN,W
			CULG							2040	2314							IIIN,W
			BOUL										2046.4	2046.5	1			III
			BOUL										2107.8	2107.4	1			III
			BOUL										2112.4	2112.7	1			III
			BOUL										2117.4	2117.6	1			III
			BOUL							2132.6	2132.8	1	2132.6	2132.8	1			III
			CULG							2133		1						IIIB
			CULG							2137.5	2138.5	1						IIIG
			BOUL							2140.5	2140.8	2	2140.5	2140.8	2			III
			BOUL										2143.0	2143.2	1			III
			CULG							2145.5		1						IIIB
			SGMR										2145.6	2145.9	1			III
			BOUL							2208.0	2208.4	1	2208.0	2208.4	1			III
			CULG							2208.5		1						IIIB
			CULG							2234		1						IIIB
			BOUL							2234.0	2234.3	1	2234.0	2234.3	1			III
			BOUL										2312.4	2313.7	1			III
19	0000	0114	HARV															
	0000	0731	CULG							0040	0254							IN,W
			CULG							0140	0144	1	0141	0143	1			IIIG,V
	0000	0200	BOUL										0140.9	0141.8	1			III
	0514	0631	HEIS															
	0650	1750	HEIS															
	1000	2325	SGMR															
	1301	2400	HARV				1752	1755	2									IIIGG
	2031	2400	CULG							2031	2344							IN,W
			CULG							2041.5	2342							IIIN,W
	1200	2400	BOUL										2131.9	2131.7	1			III
			BOUL							2135.5	2135.7	1	2135.9	2135.7	1			III
			CULG							2135.5		1						IIIB
			BOUL										2348.4	2351.4	1			IIIG
20	0000	0731	CULG							0012	0254	1						IIIN,W
	0000	0200	BOUL							0013.5	0013.7	1	0013.5	0013.7	1			III
			CULG				0051	0052.5	1	0051	0052.5	1						IIIG
	0000	0115	HARV				0053		2	0051	0054	2						IIIGG
			CULG				0450	0503										IN,W
	0502	1412	HEIS															
	1301	2400	HARV							1301	1347	1						IN
	1200	2400	BOUL										1812.5	1813.6	1			IIIG
	0959	2327	SGMR										1812.6	1812.9	1			III
	2031	2400	CULG				2031	2159	1	2031	2400	1						IS,CONT
			HARV							2100	2223	1						IN
			CULG							2103	2300							IIIN,W
			CULG				2117	2119	1	2118	2119	1						IIIG
			BOUL							2118.2	2118.4	1	2118.2	2118.4	1			III

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APR. 1973	TIMES OF OBSERVATION		STATION	EVENTS												SPECTRAL TYPE
				CENTIMETRIC BAND			DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT.	START UT	END UT	INT.	START UT	END UT	INT.	START UT	END UT	INT.	
21	0000	0731	CULG							0000	0655	1				IS
			CULG							0011	0710					IIIN,W
			CULG				0030	0731								IN,W
			CULG				0105.5	0110.5	1	0105.5	0111	2	0106	0110	1	IIIGG,V
	0000	0200	BOUL							0105.8	0110.8	2	0105.8	0110.8	2	IIIGG
	0000	0115	HARV				0107	0108	1	0105	0111	2				IIIGG
			CULG							0655	0731	1				IS,CONT
	0502	1752	WEIS							1042.7	1043.2	1				IIIG
			WEIS							1057.7	1057.8	1				IIIB
	1200	2400	BOUL							1245	1330	1	1245	1330	1	CONT
			WEIS							1305.4	1305.6	1				IIIG
	0958	2328	SGMR										1305.6	1316.1	1	III
	1301	2400	HARV							1435	1809	1				IN
			HARV				1559	1600	2							IIIGG
			BOUL							1744.4	1745.0	2	1744.4	1745.0	2	III
			BOUL										2019.3	2019.6	1	III
			BOUL							2022.8	2023.2	1	2022.8	2023.2	1	III
	2031	2400	CULG							2031	2400	1				IS
			CULG							2049	2050	1				IIIG,U
			CULG							2053	2400					IIIN,W
			SGMR										2112.3	2112.6	1	III
			CULG							2117	2119	1				IIIG
			BOUL							2117.3	2117.5	1	2117.3	2117.5	1	III
			BOUL							2118.8	2119.0	1	2118.8	2119.0	1	III
			HARV							2150	2151	3	2150	2151	3	IIIB
			CULG							2150.5	2151	2	2150.5	2151	1	IIIG,V
			BOUL							2150.6	2150.9	2	2150.6	2150.9	2	III
			BOUL							2210.6	2210.7	1	2210.6	2210.7	1	III
			BOUL							2304.8	2305.1	1	2304.8	2305.1	1	III
			CULG							2346	2348	1				IIIG
			BOUL							2346.8	2347.9	1	2346.8	2347.9	1	IIIG
22	0000	0200	BOUL							0000	0200	2	0000	0200	2	IIIN
			CULG							0000	0731	1				IS
	0000	0731	CULG							0000	0638	1				IIIN
	0000	0115	HARV							0030	0036	1				IIIGG
			CULG							0031	0032.5	2	0031	0031.5	1	IIIG,V
			CULG							0052	0056	2				IIIGG
			HARV							0053	0056	2				IIIGG
			HARV							0105	0107	2				IIIG
			CULG							0105	0106.5	1				IIIG
			CULG							0122	0123	1				IIIG
			CULG							0128	0129	2	0128	0129	1	IIIG,V
			CULG							0145.5	0146.5	2	0146	0146.5	1	IIIG
			CULG							0158	0158.5	1				IIIG
			CULG							0214.5		1				IIIB
			CULG							0234		1				IIIB
			CULG							0240	0244	2				IIIGG
			CULG							0245	0245.5	1				IIIG
			CULG							0249.5	0250	1				IIIG
			CULG							0322	0322.5	2				IIIG
	0505	1220	WEIS							0955.1	1001.8	1				IIIGG
	0955	2328	SGMR										1209.2	1209.6	2	III
			WEIS							1209.3	1209.5	2				IIIG
			SGMR										1221.7	1222.9	1	III
	1200	2400	BOUL										1222.5	1223.1	2	III
			BOUL							1231.7	1232.1	1				III
			BOUL							1232	1400	1	1232	1400	1	IV
	1300	2400	HARV							1300	2228	1				I
			HARV							1500	1501	2	1500	1501	2	IIIG
			BOUL							1500.1	1501.1	2	1500.1	1501.1	2	IIIG
			BOUL							1500.2	1600	1	1500.2	1600	1	CONT
			SGMR										1500.3	1501.1	2	III
			BOUL										1527.5	1528.0	1	III
			BOUL										1722.1	1722.3	1	III
			BOUL							1810.0	2010	1	1819.0	2010	1	CONT
			HARV							1818	1825	2	1818	1825	2	IIIGG
			BOUL							1818.6	1818.8	1	1818.6	1818.8	1	III
			BOUL							1819.9	1822.5	2	1819.9	1822.5	2	IIIG
			SGMR										1819.9	1825.8	2	IIIG
			SGMR										1830.3	1830.9	1	III
			SGMR										1849.6	1850.2	1	III
	2030	2400	CULG				2030	2155	1	2030	2400	1				IS,CONT
			CULG							2114	2400					IIIN,W
			BOUL							2121.3	2121.4	1	2121.3	2121.4	1	III
			SGMR										2145.8	2152.3	2	III
			BOUL							2146.0	2146.3	2	2146.0	2146.3	2	III
			HARV							2148	2152	3	2148	215.	3	IIIGG
			BOUL							2148.0	2153.3	3	2148.0	2153.3	3	IIIG
			HARV				2149	2154	2							IV
			CULG				2149	2151	1	2145.5	2153	3	2149	2152	1	IIIGG,V
			CULG							2154		1				IIIB
			CULG							2155	2157	1				IIIG
			CULG							2156	2207	2				II
			CULG							2158	2158.5	1				IIIG
			HARV							2158	2204	2	2202	2205	2	II
			BOUL							2158.2	2159.0	2	2158.3	2159.0	2	III
			CULG							2159	2300	1				IV
			SGMR										2159.5	2205.2	2	II
			BOUL							2159.5	2206.6	2				IIH

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APR. 1973	TIMES OF OBSERVATION		STATION	EVENTS												SPECTRAL TYPE
				CENTIMETRIC BAND			DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT.	START UT	END UT	INT.	START UT	END UT	INT.	START UT	END UT	INT.	
22			BOUL							2159.5	2206.7	2	2159.5	2206.7	2	IIF
			BOUL							2206	2400	2	2206	2400	2	IV
			HARV							2228	2400	1				IN
			CULG				2335.5	2337.5	1	2335.5	2338	2				IIIG
23	0000	0730	CULG							0000	0730	1				IS,CONT
	0000	0115	HARV							0000	0115	1				IN
	0000	0200	BOUL							0000	0130	1	0000	0130	1	CONT
			CULG				0002	0730								IS,W
			CULG							0010	0658.5					IIIN,W
			CULG							0011	0012.5	1				IIIG
			CULG							0044	0045	1				IIIG
			CULG							0047	0048	1				IIIG
			CULG							0111.5	0112.5	1				IIIG,V
			CULG							0114	0115.5	1				IIIG
			CULG							0132	0133	1				IIIG
			CULG							0252.5	0253.5	1				IIIG
			CULG							0304.5	0305.5	1				IIIG
			CULG							0306	0310	1				IIIGG
			CULG							0312	0313	1				IIIG
			CULG				0326	0326.5	1	0328	0326.5	1				IIIG
			CULG				0333	0333.5	1	0333	0333.5	1				IIIG
			CULG							0534.5	0535.5	1				IIIG
			CULG							0654	0655	1				IIIG
	0954	2330	SGMR										1219.0	1221.5	2	III
	1200	2400	BOUL							1220.6	2132.5	2	1220.6	2132.5	2	IIIN
			BOUL							1221	2150	1	1221	2150	1	CONT
	1301	2400	HARV							1301	2400	1				I
			SGMR										1315.9	1316.6	2	III
			BOUL							1315.9	1316.7	2	1315.9	1316.7	2	IIIG
			HARV				1339		2							IIIG
			SGMR										1407.0	1407.7	1	III
			SGMR										1423.5	1426.1	1	IIIG
			HARV							1424	1426	1	1424	1426	1	IIIG
			SGMR										1442.2	1442.9	1	III
			HARV							1502	2132	1	1502	2132	1	IIIN
			SGMR										1502.6	1518.1	2	IIIG
			SGMR										1522.5	1528.5	1	IIIG
			HARV							1532	1533	1				IIIG
			SGMR										1615.1	1627.9	1	IIIG
			HARV							1626	1627	2	1626	1627	2	IIIG
			HARV							1700	1701	2	1700	1701	2	IIIG
			SGMR										1700.1	1730.7	2	III
			HARV							1724		3	1724		3	IIIG
			SGMR										1724.4	1724.8	2	III
			SGMR										1736.2	1743.0	2	IIIG
			HARV				1740	1743	1	1740	1743	3	1740	1743	3	IIIGG,V
			BOUL							1740.6	1743.0	3	1740.6	1743.0	3	IIIG
			HARV							1744	1746	1				IIIG
			HARV							1811		3	1811		3	IIIG
			SGMR										1811.0	1811.4	2	III
			HARV							1853	1902	3	1853	1902	3	IIIGG
			SGMR										1853.6	1901.0	2	IIIG
			HARV							1912	1913	3	1912	1913	3	IIIG
			SGMR										1912.0	1921.5	2	IIIG
	2030	2400	CULG				2030	2400	1	2030	2400	1				IS,CONT
			CULG							2030	2337	1				IIIN
			SGMR										2057.9	2105.7	1	IIIG
			CULG				2058	2058.5	1	2058	2059	2				IIIG
			HARV							2058	2059	2	2058	2059	2	IIIG
			CULG							2105	2105.5	2				IIIG
			SGMR										2118.0	2132.4	1	IIIG
			CULG							2118.5	2119	2				IIIB
			CULG				2132	2132.5	1	2132	2132.5	2				IIIG
			CULG				2143.5	2145.5	1	2141	2146	1				IIIGG
			CULG				2215	2216								IIIG,W
			BOUL										2327.6	2327.7	1	III
24	0000	0730	CULG				0000	0650	1	0000	0730	1				IS
	0000	0116	HARV							0000	0114	1				I
			CULG							0008	0010	1				IIIG
			CULG							0008	0729					IIIN,W
	0000	0200	BOUL							0008.3	0012.6	2	0008.3	0012.6	2	IIIG
			CULG							0011.5		1				IIIB
			CULG							0020	0022	1				IIIG
	1200	2400	BOUL							0020.5	0024.7	1	0020.5	0024.7	1	IIIG
			CULG							0024	0025	1				IIIG
			CULG				0240	0241	1	0238	0241	2				IIIG,V
			CULG							0250		1				IIIB
			CULG							0531	0532	1				IIIG
			CULG							0538.5	0539.5	1				IIIG
			CULG							0544	0544.5	3	0544	0544.5	1	IIIG,V
			CULG				0626	0627	1	0626	0628	3				IIIG,V
			CULG							0642.5	0643	1				IIIG
			CULG							0720	0722	1				IIIG
	1301	2400	HARV							1301	1415	1				I
	0952	2331	SGMR										1314.0	1319.1	2	IIIG
			HARV							1316	1319	2	1316	1317	1	IIIGG
			BOUL							1319.1	1324.9	3	1319.1	1324.9	3	IIIGG
			BOUL							1411.3	1416.8	3	1411.3	1416.8	3	IIIGG

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APR. 1973	TIMES OF OBSERVATION		STATION	EVENTS												SPECTRAL TYPE
				CENTIMETRIC BAND			DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT.	START UT	END UT	INT.	START UT	END UT	INT.	START UT	END UT	INT.	
24			SGMR										1411.3	1419.2	3	V
			HARV				1412	1415	3	1411	1415	3	1412	1415	3	IIIGG,V
			BOUL							1417	1535	2	1417	1535	2	IV
			BOUL							1421.5	1427.0	1				IIH
			BOUL										1421.5	1426.8	1	IIF
			BOUL							1426.4	1435.7	2	1426.4	1435.7	2	IIIGG
			SGMR										1427.8	1436.0	2	CONT
			HARV							1428	2231	1				IN
			HARV							1431	1436	1				IIIGG
			HARV				1432	1437	1							IV
			BOUL							1445.6	1448.4	3	1445.6	1448.4	3	IIIG
			HARV							1446	1447	2	1446	1447	2	IIIG
			HARV							1518	1936	1	1518	1936	1	IIIN
			BOUL							1535	1923.0	1	1535	1923.0	1	CONT
			HARV				1537	1651	1							IN
			BOUL							1605.5	1607.0	3	1605.5	1607.0	3	IIIG
			SGMR										1605.7	1607.1	3	V
			HARV							1606	1607	3	1606	1607	3	IIIG
			HARV							1650	1654	1	1650	1654	1	IIIGG
			HARV				1923	1930	2	1921	1930	3	1921	1929	3	IIIGG,V
			BOUL							1923.0	1930.2	3	1923.0	1930.2	3	IIIGG
			SGMR										1923.1	1929.9	2	IIIG
			BOUL							1935	2150	2	1935	2150	2	IV
			BOUL										1936.5	1945.3	2	IIF
			BOUL							1936.8	1946.2	3	1936.8	1946.2	3	IIH
			HARV							1937	1946	2	1943	1946	2	II
			SGMR										1938.0	1945.9	2	II
			HARV							2024	2026	1	2025	2026	1	IIIGG
	2030	2400	CULG							2030	2400	1				IS,CONT
			CULG							2149.5	2151	3				IIIGG,V
			BOUL							2149.8	2151.2	3	2149.8	2151.2	3	III
			HARV							2150	2151	2	2150	2151	2	IIIGG
			BOUL							2151	2400	1	2151	2400	1	CONT
			CULG							2155	2350.5					IIIN,W
25	0000	0730	CULG							0000	0725	1				IS
	0000	0200	BOUL							0000	0130	1	0000	0130	1	CONT
			CULG							0016	0515					IIIN,W
			CULG							0057	0059	2	0057	0058.5	1	IIIG,V
	1200	2400	BOUL							0057.0	0059.3	3	0057.0	0059.3	3	IIIGG
			CULG				0103	0104	1	0103	0104	2				IIIG,U
	0000	0117	HARV				0103	0104	1	0103	0104	2				IIIG
			CULG							0148	0149	1	0148	0149	1	IIIG,V
			CULG							0323	0325	1				IIIG,V
			CULG				0419	0427	1	0419	0427.5	2	0423	0426	1	IIIGG,V
			CULG							0441	0442	1				IIIG
			CULG				0455	0456	1	0454	0456	1				IIIGG
	0705	1758	WEIS							0818.8	0819.3	2				IIIG
			WEIS							0856.7	0858.1	2				IIIG
			WEIS							0931.5	0931.8	1				IIIG
	0951	2332	SGMR										1322.0	1322.9	1	III
			BOUL							1322.1	1322.7	2	1322.1	1322.7	2	IIIG
			BOUL							1456.6	1457.1	1	1456.6	1457.1	1	IIIG
	1300	2400	HARV							1514	1515	3	1514	1515	3	IIIG
			WEIS							1514.4	1514.7	1				IIIG
			BOUL							1514.5	1805.5	2	1514.5	1805.5	2	IIIN
			SGMR										1514.6	1514.8	2	III
			WEIS							1517.5	1517.6	1				IIIB
			SGMR										1556.1	1556.3	1	III
			SGMR										1655.5	1701.2	1	IIIG
			HARV							1659	1703	2	1700	1701	2	IIIG
			HARV							1804	1805	3	1804	1805	3	IIIG
			SGMR										1804.7	1805.1	2	III
	2030	2400	CULG							2036.5	2400					IS,W
			CULG							2038	2038.5					IIIG,W
			CULG							2046	2329					IIIN,W
			BOUL							2133.9	2134.7	1	2133.9	2134.7	1	IIIG
			CULG							2157.5	2158.5	1				IIIG
			BOUL							2157.9	2158.9	1	2157.9	2158.9	1	IIIG
26	0000	0119	HARV													
	0000	0728	CULG							0028.5	0029.5	1				IIIG
	0000	0200	BOUL							0028.7	0029.5	2	0028.7	0029.5	2	III
			CULG							0031	0527.5					IN,W
			CULG				0055.5	0056								IIIG,W
			CULG							0109.5	0703.5					IIIN,W
			CULG				0214	0216	1							IIIG
	0502	1432	WEIS													
			CULG							0538.5		1				IIIB
	1200	2400	BOUL										1348.4	1348.6	1	III
	1436	1801	WEIS													
			BOUL										1654.0	1654.3	1	III
	1301	2400	HARV							1710	1711	1				IIIG
			BOUL							1748.9	1748.6	1	1748.9	1749.6	1	IIIG
	0950	2333	SGMR										1749.0	1749.3	1	III
			HARV							1800	1801	3	1800	1801	3	IIIG
			BOUL							1800.3	1801.0	2	1800.3	1801.0	2	III
			SGMR										1800.4	1800.8	2	III
			BOUL							1808.4	1808.5	1	1808.4	1808.5	1	III
			HARV				1942	1944	1							I

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				CENTIMETRIC BAND			DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND				
	START UT	END UT		START UT	END UT	INT.	START UT	END UT	INT.	START UT	END UT	INT.	START UT	END UT	INT.		
26			BOUL										1951.8	1952.3	1		III
			HARV				1958	2000	1	1958	1959	2					IIIGG
			BOUL										2000.2	2006.0	1	IIF	
			BOUL							2001.0	2005.7	3				IIH	
			HARV							2001.2	2009	2	2006	2038	2	II	
			SGMR										2002.4	2006.8	2	II	
			BOUL							2003.2	2007.0	3				IIH	
			BOUL										2003.8	2038.3	3	IIF	
			BOUL							2005.6	2006.6	2	2005.6	2006.6	2		IIIG
			BOUL							2017.7	2017.8	1					
	2030	2400	CULG							2037	2400	1					IN
			CULG				2106	2107.5	1	2106	2108.5	2					IIIG,V,U
			HARV				2107	2108	1	2106	2108	2	2107	2138	1		IIIGG
			SGMR										2107.1	2107.7	1		III
			BOUL							2107.2	2107.7	2	2107.2	2107.7	2		III
			SGMR										2124.9	2125.2	1		III
			CULG							2251.5	2254	1					IIIG
			BOUL							2252.4	2252.6	1	2252.4	2252.6	1		III
			BOUL							2253.4	2253.7	2	2253.4	2253.7	2		III
			HARV				2302	2304	1	2302	2308	2	2304	2307	1		IIIGG
			CULG				2302.5	2308.5	1	2302.5	2309	3					IIIGG,V,U
			BOUL							2302.6	2307.7	3	2302.6	2307.7	3		IIIGG
			CULG							2314.5	2320	1				II	
			BOUL							2315.4	2321.4	2	2315.4	2321.4	2	IIF	
			BOUL							2315.6	2320.2	2				IIH	
			CULG							2318.5	2324	1					IIIGG
			BOUL							2321.9	2322.0	1					III
			BOUL							2326.8	2328.8	1					III
27	0000	0739	CULG							0000	0017	1					I
			CULG							0026.5	0608	1					IIIN
			CULG							0032	0033.5	1					IIIG
	0000	0200	BOUL							0032.8	0032.9	1					
			CULG				0038.5	0039	1	0038.5	0041.5	1					IIIG
	1200	2400	BOUL							0038.8	0039.8	1	2038.8	0039.0	1		III
	0000	0120	HARV							0039	0041	1					IIIG
			BOUL							0040.9	0041.1	1	0040.9	0041.1	1		III
			CULG				0117.5	0118	1	0117.5	0119	3	0118	0119	1		IIIG,V
			BOUL							0117.7	0119.0	3	0117.7	0119.0	3		III
			CULG							0209	0210.5	1					IIIG
			CULG							0302	0303.5	1					IIIG
			CULG							0310.5	0311	1					IIIB
			CULG				0342	0343.5	1	0342	0344.5	1					IIIG
			CULG							0456	0459.5	2					IIIGG,V,U
			CULG							0514.5		1					IIIB
			CULG							0516	0517	1					IIIG
			CULG							0526.5	0522	1					IIIG
	0501	1804	WEIS							1012.3	1016.5	2					IIIG
	0949	2334	SGMR										1012.8	1016.0	2		IIIG
			WEIS							1201.8	1229.8	1					IIIG,N
			WEIS							1203.0	1222.0	1					IN
			SGMR										1204.9	1205.1	2		III
			BOUL										1204.9	1205.1	1		III
			SGMR										1213.0	1213.6	2		III
			BOUL										1213.2	1213.6	1		III
	1300	2400	HARV							1300	1417	1					IN
			HARV							1340	1342	2	1340	1342	2		IIIG
			WEIS							1340.5	1341.7	1					IIIG
			BOUL							1340.5	1342.8	3	1340.5	1342.8	3		III
			BOUL							1409.0	1409.2	1	1409.0	1419.2	1		III
			HARV							1518	1757	1					IN
			BOUL							1542.7	1543.1	1	1542.7	1543.1	1		III
			HARV							1556	1557	3	1556	1557	3		IIIG,V
			WEIS							1556.1	1557.1	1					IIIG,V
			SGMR										1556.2	1557.3	2		V
			BOUL							1556.2	1557.4	3	1556.2	1557.4	3		IIIG
			SGMR										1559.1	1559.5	1		III
			BOUL							1605.8	1605.8	1					III
			BOUL							1655.6	1659.2	2	1655.6	1659.2	2		IIIGG
			SGMR										1655.9	1658.7	2		IIIG
			HARV							1656	1659	2	1656	1659	2		IIIGG
			WEIS							1656.0	1657.0	1					IIIG
			BOUL							1700	1745.0	1	1700	1745.9	1		CONT
			BOUL							1745.0	2400	1	1745.0	2410	1		CONT
			BOUL							1903.7	1903.9	1					IIIG
			HARV							1914	1915	3	1914	1915	3		IIIG
			BOUL							1914.2	1915.8	2	1914.2	1915.8	2		III
			SGMR										1914.3	1915.0	2		III
	2030	2400	CULG							2041.5	2400	1					IN
			CULG							2055	2342	1					IIIN
			CULG							2059	2106.5	1					IIIG
			BOUL							2134.6	2134.9	1	2134.6	2134.9	1		III
			BOUL							2139.2	2139.3	1	2139.2	2139.3	1		III
			CULG							2328	2330	1					IIIG,V,U
			BOUL							2328.8	2329.9	2	2328.8	2329.2	1		III
			CULG							2343.5	2344	1					IIIG
			BOUL							2343.7	2344.0	2	2343.7	2344.0	2		III
			CULG							2358		1					IIIB
			BOUL							2358.6	2358.6	1	2358.6	2358.6	1		III
28	0000	0200	BOUL							0000	0200	1	0000	0210	1		CONT

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				CENTIMETRIC BAND			DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT.	START UT	END UT	INT.	START UT	END UT	INT.	START UT	END UT	INT.	
28	0000	0729	CULG							0000	0425	1				IN
	0000	0121	HARV													
			CULG							0032.5	0034	1				IIIG
			CULG							0049.5	0723.5	1				IIIN
			CULG							0103	0104.5	1				IIIG
			CULG							0117.5	0118.5	1				IIIG,V
			CULG							0200		1				IIIB
			CULG							0203.5	0204.5	1	0203.5	0204.5	1	IIIGG
			CULG							0410.5	0411.5	1				IIIG
			CULG							0425	0723	1				IS
			CULG							0443	0445	1				IIIG
			CULG							0446.5	0450	1				IIIG
			CULG							0452	0708	1				IIIS
			CULG							0453.5	0456.5	2				IIIG,V
	0501	0900	WEIS							0522.0	0727.0	2				IS
			CULG							0533.5		1				IIIB
			CULG				0537.5	0539	1	0537	0539	1				IIIGG
			CULG							0644.5	0646	1				IIIG
			CULG							0648.5	0650.5	1				IIIG
			WEIS							0649.2	0650.0	1				IIIG
			WEIS							0828.1	0826.3	1				IIIG
	1200	2400	BOUL							1440	2400	1	1440	2400	1	CONT
			BOUL							1520.2	1522.4	1	1520.2	1522.4	1	IIIG
	0947	2336	SGHR										1530.3	1530.8	1	III
	1301	2400	HARV							1614	1625	1				I
			BOUL										1627.0	1628.6	1	IIIG
	1722	1805	WEIS													
			BOUL										1722.4	1723.7	1	III
			HARV							1745	2126	1	1745	2126	1	IIIN
			BOUL										1745.2	1747.2	1	IIIG
			HARV							1922	1939	1				IN
			SGHR										1925.6	1931.8	1	IIIG
	2036	2400	CULG							2033	2251	2				IS,CONT
			CULG							2046	2249					IIIS,N
			HARV							2118	2218	1				I
			SGHR										2125.4	2125.8	1	III
			CULG							2125.5	2220	1				IIIG
			HARV				2130	2148	1							IN
			CULG				2131	2157								IIIN,W
			CULG							2220	2400	1				IS
			CULG							2249	2400					IIIN,W
29	0000	0727	CULG							0000	0126	1				IS
	0000	0122	HARV													
	0000	0200	BOUL							0000	0200	1	0000	0200	1	CONT
			CULG				0118	0623.5								IN,W
			CULG							0119	0127	1				IIIGG
	1200	2400	BOUL							0119.8	0128.0	2	0119.8	0128.3	2	IIIGG
			CULG							0131	0137	1				IIIGG
			CULG							0140	0340	1				IV
			CULG							0236	0241	1				IIIGG
			CULG							0255	0727	1				IS
			CULG							0340	0727	1				IIIS
			CULG							0643.5	0645	1				IIIG
			CULG							0648	0655	1				IIIGG
			CULG							0654	0717	1				IV
	0501	1805	WEIS							0959.5		1				IS
	0946	2337	SGHR										1009.0	1309.8	2	IV
			WEIS							1017.4	1110.7	1				IIIN
			WEIS							1048.3	1227.0	1				CONT
			BOUL							1210	1500	1	1210	1500	1	IV
	1301	2400	HARV							1301	1620	1				I
			HARV				1331	1332	2							IIIGG
			SGHR										1505.5	1517.1	1	III
			BOUL							1505.9	1506.8	1	1505.9	1506.8	1	IIIG
			HARV				1725	1726	2							IIIGG
			HARV							1823	1920	1				IN
			BOUL							1830.0	2100.0	1	1830.0	2100.0	1	CONT
	2029	2400	CULG				2034	2055	1	2034	2400	1				IS,CONT
			CULG							2050	2157.5	1				IIIN
			HARV				2055	2100	2	2058	2102	2	2100	2102	3	IIIGG
			HARV				2056	2400	3	2100	2252	3				IVP
			CULG				2056.5	2101	2							II
			CULG	2050	2226	2	2057	2300	3							IV, P
			CULG										2100	2300	1	SWF
			CULG							2100	2248	3				IV
			BOUL							2100.0	2105.8	3	2100.0	2105.8	3	III
			SGHR										2100.5	2337.9	3	V
			HARV							2101	2122	3	2102	2120	3	II
			BOUL							2102.2	2111.5	3	2102.0	2111.5	3	II
			BOUL										2108.2	2127.4	3	II
			BOUL							2115	2400	2	2115	2400	2	IV
			CULG							2117	2119	1				IIIG
			BOUL										2125.2	2110.8	3	II
			HARV							2230	2400	1				I
			CULG							2256	2258	1				UNCLF
			CULG				2300	2352	2							IV
			CULG				2352	2400	3							IV
			HARV				2352	2359	3							IIIGG,V
			CULG							2356.5	2357	2				IIIG

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

APRIL 1973

APR. 1973	TIMES OF OBSERVATION		STATION	EVENTS												SPECTRAL TYPE
				CENTIMETRIC BAND			DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT.	START UT	END UT	INT.	START UT	END UT	INT.	START UT	END UT	INT.	
30	0000	0729	CULG							0000	0620	1				IS
			CULG				0000	0149	1							IV
	0000	0123	HARV							0000	0116	1				I
			HARV				0000	0025	3							IV
	0000	0200	BOUL							0000	0125	2	0000	0125	2	IV
			CULG							0009	0635					IIIN,W
			CULG				0149	0152	2							IV
			CULG				0152	0247	1							IV
			CULG				0247	0340	3							IV
			CULG				0340	0435	1							IV
			CULG							0550	0551					IIIG,V,W
			CULG				0553.5	0558	1	0552	0604	3				IIIGG
	0501	1139	WEIS							0553.6	0602.4	2				IIIGG
			CULG				0609	0615								IIIN,W
			CULG							0620	0729	1				IS,CONT
	0944	2338	SGHR													
	1142	1809	WEIS							1431.3	1431.6	1				IIIG
	1200	2400	BOUL							1743.9	1744.0	1	1743.9	1744.0	1	III
	1246	2400	HARV				1746	1747	1	1746	1747	1				IIIG
			BOUL							1746.2	1747.2	1	1746.2	1747.2	1	IIIG
			HARV							2032	2036	1				IIIG
	2029	2400	CULG				2117	2136		2117	2400					IN,W
			CULG				2147			2147						IIIB,W
			HARV				2256	2258	2							IIIGG

The symbols used in connection with the spectral type in describing the important bursts are as follows:

B = Single burst
G = Small group (< 10) of bursts
GG = Large group (> 10) of bursts
C = Underlying continuum (particularly with type I)
S = Storm in the sense of intermittent but apparently connected activity
N = Intermittent activity in this period
U = U-shaped burst of Type III
RS = Reverse slope burst
DP = Drifting pairs
DC = Drifting Chains
H = Herringbone
W = Weak
P = Pulsations
CONT = Continuum
UNCLF = Unclassified activity

SELECTED SOLAR EVENTS

APRIL 1973

Culgoora

UT Date 1973. APRIL	HELIOGRAPH EVENT							Spectral Type	REMARKS
	Start (UT)	End (UT)	Freq. (MHz)	Positions: Central Dist. ($R_\odot$)	Positions: Position Angle (Deg.)	Polarization	Intensity (1-3)		
1	2317	2320	80	1.0	30	0	2	IIIGG,V	Double source at 80MHz only
			80	1.3	20				
			160	0.9	50				
3	0244	0246	80	1.4	50	0	1	IIIG,V	*
			160	1.1	70				
	0404	0407	80	1.3	240	0	1	IIIG	*
			160	1.0	240				
	0458	0459	80	1.2	20	0	3	IIIG	*
			160	1.1	20				
	2333	2334	80	1.3	310	0	2	IIIG	
			160	0.8	280				
4	0004	0006	80	1.2	50	0	1	IIIG	*
			160	0.9	45				
5	0237	0243	80	1.0	90	0	3	IIIGG,V	
			160	1.0	90				
7	0207	0209	80	1.2	80	0	2	IIIG,V,U	*
			160	1.0	80				
9	2309	2312	80	1.1	220	0	3	IIIG,V	*
			160	1.0	240				
19	0140	0144	80	1.3	70	0	2	IIIG,V	
			160	1.1	80				
20	0050	0053	160	0.8	120	0	2	IIIG	Bursts not visible at 80MHz

Days without Heliograph observations: ----

* Other type III observed at same position during day.

SELECTED SOLAR EVENTS

APRIL 1973

Culgoora

UT Date 1973. APRIL	HELIOGRAPH EVENT							Spectral Type	REMARKS
	Start (UT)	End (UT)	Freq. (MHz)	Positions: Central Dist. ($R_\odot$)	Positions: Position Angle (Deg.)	Polarization	Intensity (1-3)		
21	0105	0111	80	90	0.6	0	2	IIIG,V	
			160	110	0.6				
22	0230	0243	80	1.2	40	0	2	IIIGG	*
			160	0.9	40				
	2250	2400	80	1.3	20	R	2	IVs	Persisted all day as type I storm
			160	0.8	20				
26	0028	0031	80	1.0	300	0	2	IIIG	
			160	0.7	260				
27	0117	0120	80	1.2	300	0	3	IIIG,V	Complex source structure
			160	0.9	300				
29-30	< 2240	> 0300	80	1.7	240	0	1-2	IVs	Began before observing period; intensity decreased during day.
			160	1.2	240				

Days without Heliograph observations: ----

* Other type III observed at same positions during day.

COSMIC RAY INDICES

(Neutron Monitors)

APRIL 1973

Apr. 1973	THULE DAILY AVERAGE COUNTS PER HOUR	DEEP RIVER DAILY AVERAGE COUNTS PER HOUR	CALGARY DAILY AVERAGE COUNTS PER HOUR	SULPHUR MT. DAILY AVERAGE COUNTS PER HOUR	CLIMAX DAILY AVERAGE COUNTS PER HOUR	DALLAS DAILY AVERAGE COUNTS PER HOUR
1	4473.8		11665.7	8615.1		6343.8
2	4461.8		11590.9	8545.0		6304.6
3	4439.6		11524.4	8485.0		6246.9
4	4408.4		11424.6	8428.6		6212.5
5	4425.5		11367.2	8453.2		6207.7
6	4456.3		11434.1	8482.1		6213.3
7	4445.5		11518.2	8496.9		6221.6
8	4448.5		11536.9	8501.9(9)		6217.1
9	4459.4		11570.4	-- (0)		6235.6
10	4459.0		11597.6	-- (0)		6227.7
11	4442.5		11540.1	8587.3(5)		6239.9
12	4448.5		11487.2	8563.7		6197.6
13	4393.2		11311.5	8446.8		6131.5
14	4294.3		11054.1	8212.6		6045.6
15	4257.2		10990.4	8153.7		5971.4
16	4376.6		11361.3	8474.6		6161.5
17	4453.9		11475.2	8575.5		6221.1
18	4461.5		11483.7	8597.0		6214.1
19	4448.6		11500.4	8554.2		6210.4
20	4445.4		11461.7	8530.3		6195.8
21	4462.0		11507.8	8556.8		6197.0
22	4449.6		11484.3	8574.8		6186.9
23	4442.7		11476.9	8575.0		6182.2
24	4439.3		11521.2	8601.8		6189.3
25	4452.0		11513.1	8578.6		6202.0
26	4420.0		11415.4	8513.4		6181.9
27	4385.0		11355.9	8481.7(5)		6176.3
28	4433.4		11453.4	-- (0)		6206.9
29	4443.9		11520.7	-- (0)		6228.0
30	4445.8		11528.7	-- (0)		6186.5

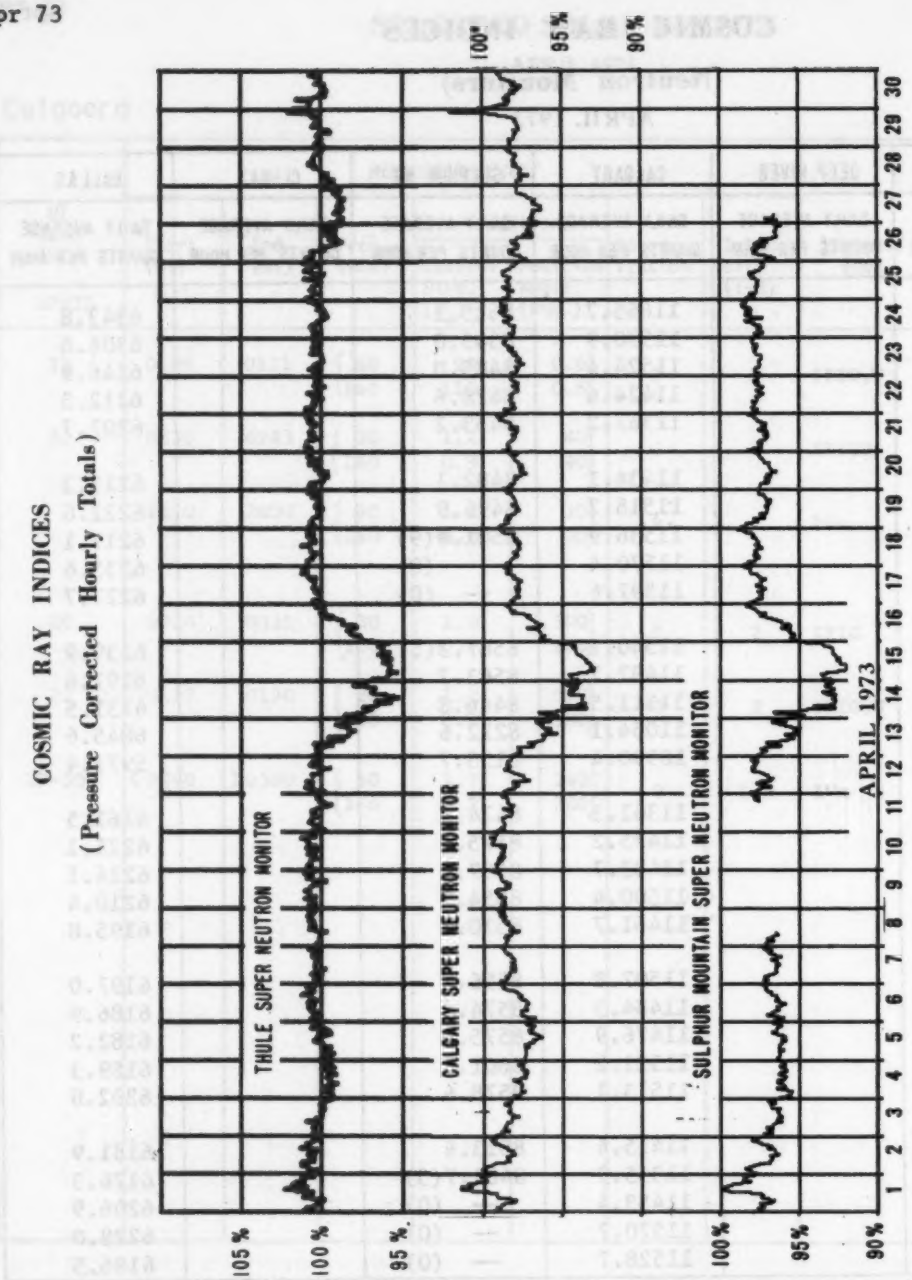
( ) Number of hours for which data are available if less than 24 (or number of section hours if less than 40 for Climax).

Churchill and Dallas Super Neutron Monitors, Scaling Factors 120.

Deep River Super Neutron Monitor, Scaling Factor 300.

Thule, Calgary and Sulphur Mountain Super Neutron Monitors, Scaling Factors 100.

Climax IGC Station B305, Scaling Factor 100.


COSMIC RAY INDICES
(Pressure Corrected Hourly Totals)
THULE SUPER NEUTRON MONITOR
CALGARY SUPER NEUTRON MONITOR
SULPHUR MOUNTAIN SUPER NEUTRON MONITOR
APRIL 1973
105 %
100 %
95 %
100 %
95 %
90 %
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30

The Thule nucleonic intensity detector, of standard IQSY design, is located at AFCRL Geopole Station, Greenland: latitude 76°36'N, longitude 68°48'W, altitude 260m, geomagnetic threshold rigidity essentially zero. The data are communicated by Martin A. Pomerantz, Bartol Research Foundation, Swarthmore, Pa. 19081.

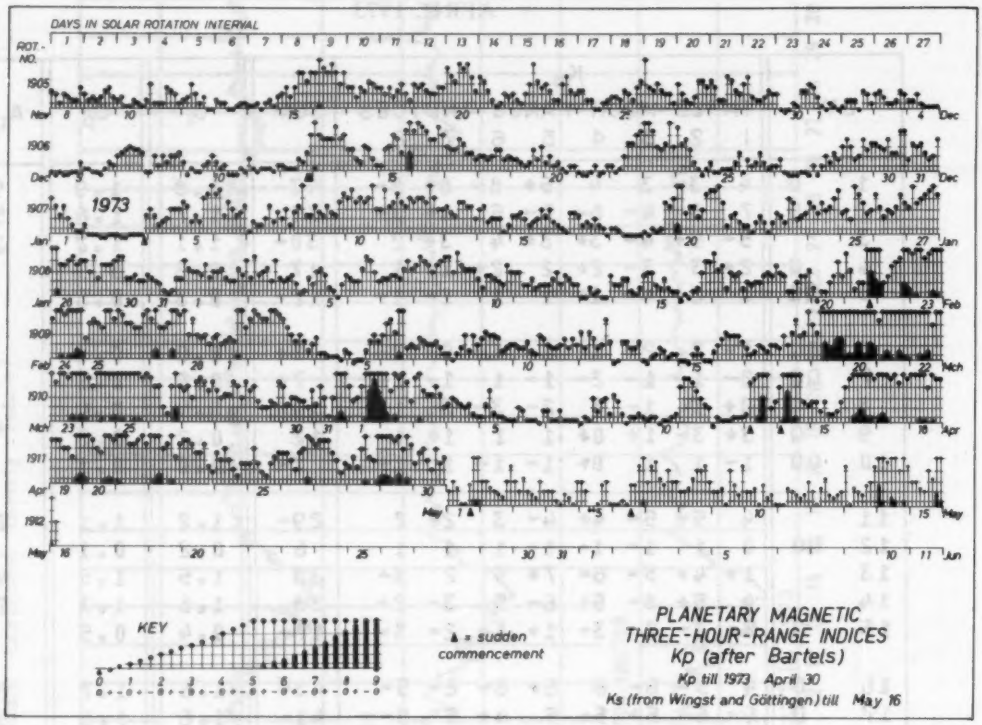
The scaling factor is 100. The plots represent percentage deviations from the monthly mean intensity. The data are corrected to the standard station atmospheric pressure, 730 mm of Hg, with the barometric coefficient - 1.00% per mm of Hg, as determined by regression analysis for the year 1972. Any changes in either the atmospheric attenuation length or in the sensitivity arising from long term drifts are applied retrospectively before the final hourly mean data are routinely distributed to the World Data Centers and to the scientific community.

GEOMAGNETIC ACTIVITY INDICES

APRIL 1973

DAY		K_p THREE-HOUR RANGE INDICES 1	2	3	4	5	6	7	8	SUM	C_i	C_p	A_p
1	D	4	3-	3	4	5+	8-	8+	8-	43-	1.8	1.9	91
2	D	7	6	4-	6-	5-	5	4+	3-	39	1.7	1.6	54
3		5-	5+	4-	3+	3+	4	3+	2	30-	1.1	1.2	26
4	Q	2+	3	3-	2+	2	2+	1+	1	17	0.3	0.5	9
5	QQ	1	2+	4-	1+	1	1	1-	1-	12-	0.3	0.3	7
6	QQ	1-	2	2-	1-	1-	1-	0+	2-	8+	0.0	0.1	4
7	QQ	2-	1-	1-	2-	1-	1-	1-	1-	7+	0.0	0.1	4
8	Q	0+	1	1-	3	2-	3-	3	1+	14-	0.4	0.4	8
9	Q	3+	3-	1+	0+	1	1	1+	1	12	0.2	0.3	7
10	QQ	1-	1	1	0+	1-	1-	1	1+	7-	0.0	0.1	4
11		4	5-	5-	4+	4-	3	2+	2	29-	1.2	1.1	24
12	QQ	0	1	1-	1-	1-	1	1	1	6	0.2	0.1	3
13		1+	4+	5-	6-	7+	5	2	3-	33	1.5	1.5	46
14		4	5+	8-	5+	6-	5	3-	2+	38	1.6	1.7	57
15	Q	3-	3-	2-	3-	1+	1+	2-	3-	17-	0.4	0.5	9
16	D	4	5-	6-	6	6+	6-	6-	5-	43-	1.6	1.7	60
17	D	6-	6	5+	5-	5	4+	5	5-	41-	1.6	1.6	51
18		5	5	5+	5+	4	5+	5-	5-	39+	1.6	1.5	46
19		5-	5-	5-	4	4	3+	6-	6	37	1.5	1.5	42
20		6-	5	5-	4	4-	5+	6-	5-	39-	1.5	1.5	46
21		5+	5	5	4+	4+	5-	5	4+	38	1.6	1.5	42
22		5	5+	6	4	4+	5+	3+	4+	38-	1.4	1.5	44
23		5-	5-	4+	4-	4-	4+	2+	2-	29+	1.1	1.2	25
24		4-	3	4	3	2	1+	3-	3-	22+	0.5	0.8	14
25	Q	3-	4	3-	2-	1+	3-	3+	4-	22	0.8	0.8	14
26		4-	4-	3	2	4-	4	6-	5-	30+	1.2	1.2	28
27		4+	5-	5-	5-	4-	3	2-	3-	29+	1.1	1.2	26
28		2+	3+	2+	4	5+	3+	3	5+	29	1.2	1.2	26
29	D	6	6	6-	5-	6	4	6-	4+	42+	1.6	1.7	59
30		3-	4-	4	3	2	4	3-	3+	25+	1.0	1.0	18
										MEAN	1.00	1.04	30

GEOMAGNETIC ACTIVITY INDICES



DAILY AVERAGE INDICES Ap

DAY	1972 MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	1973 JAN	FEB	MAR	APR
1	18	6	5	10	5	7	98	6	11	17	22	91
2	18	6	7	5	6	5	42	5	2	14	40	54
3	7	12	7	5	5	4	13	6	2	16	14	26
4	5	13	4	132	6	7	6	4	11	7	4	9
5	6	11	3	102	5	2	3	2	21	9	6	7
6	9	7	4	87	10	2	7	3	20	15	28	4
7	3	8	10	20	5	8	7	10	8	14	8	4
8	4	6	10	9	9	4	7	6	15	25	7	8
9	14	4	6	74	8	4	7	4	16	21	11	7
10	9	4	7	18	15	6	4	2	28	11	8	4
11	7	4	6	17	11	19	7	3	24	8	8	24
12	9	3	7	7	5	21	6	8	25	9	14	3
13	8	4	3	5	53	21	4	30	16	4	5	46
14	7	10	3	9	54	26	4	9	8	7	4	57
15	38	11	6	10	24	8	17	29	9	8	3	9
16	18	8	8	6	19	12	31	33	8	10	12	60
17	9	62	8	8	26	2	12	13	5	16	6	51
18	10	126	5	13	14	11	9	8	3	11	28	46
19	4	19	8	14	6	34	11	7	10	10	82	42
20	4	9	5	15	4	14	27	4	29	9	80	46
21	4	5	3	15	2	16	9	2	22	49	58	42
22	5	12	10	8	4	13	13	14	5	46	53	44
23	7	11	10	3	13	18	11	38	13	48	50	25
24	5	14	17	2	16	11	5	13	22	54	49	14
25	5	6	33	5	6	6	8	4	20	31	50	14
26	8	18	17	18	7	8	14	5	20	34	32	28
27	8	17	9	25	8	7	11	2	33	44	28	26
28	22	13	5	8	8	11	12	4	33	20	22	26
29	10	11	4	8	25	21	9	15	22		16	59
30	14	3	4	6	8	28	4	19	15		15	18
31	12		6	7		29		13	6		33	
MEAN	18	14	8	24	13	12	14	10	16	20	25	38

PRINCIPAL MAGNETIC STORMS

APRIL 1973

DATE 1973 MO. DA.	STORM TIME UT START	STORM TIME UT END MO. DA. HR	OBS.	GEO-MAG. LAT.	SUDDEN COMMENCEMENT TYPE	AMPLITUDES D(°)	AMPLITUDES H(γ)	AMPLITUDES Z(γ)	C FIGURE DEGREE OF ACTIVITY	MAXIMAL ACTIVITY ON K-SCALE 0 TO 9 MO. DA.	3-HOUR PERIOD	K INDEX	RANGES D (°)	RANGES H (γ)	RANGES Z (γ)	STORM NUMBERS
03 31	13--	04 02 20	IRKU	40.8N	..	..	..	..	MS	04 01	6,7	7	37	257	166	17
	17--	04 03 11	TUCS	40.4N	..	..	..	..	MS	04 01	6,7	6	22	210	50	17
										04 02	1,2	6				17
	1300	04 02 22	HYDE	7.6N	..	..	..	..	S	04 01	6	8	7	276	30	17
04 01	12--	04 03 07	WITT	54.1N	..	..	..	..	MS	04 01	6,7	7	60	375	375	17
	13--	04 04 09	FRED	49.6N	..	..	..	..	S	04 01	8	8	62	266	328	17
	0631	04 02 20	ALIB	9.5N	SC	0.0	9	- 3	MS	04 01	6	7	6	264	53	17
	1121	04 03 19	GUAM	4.0N	..	..	..	..	MS	04 01	7	6	0	110	20	17
	0631	04 02 20	ANNA	1.5N	SC	- 0.5	15	4	MS	-- --	-	-	6	--	68	17
	0631	04 02 20	TVAN	1.1S	SC	0.0	16	17	MS	-- --	-	-	5	317	144	17
	1241	04 03 12	APIA	16.1S	SC	+ 0	+28	- 8	MS	04 01	7					17
										04 02	2	6	6	211	32	17
	11--	04 02 20	GNAN	43.2S	..	..	..	..	MS	04 01	6,7,8	7	36	150	230	17
	13--	04 03 12	KGLN	57.3S	..	..	..	..	S	04 01	7,8	9	--	--	--	17
										04 02	1	9				17
04 10	2109	04 11 23	HYDE	7.6N	SC	- 0.1	+ 6	- 4	M	04 11	2,3,4,6	4	3	111	17	18
	2109	04 11 18	PMOR	18.6S	SC	+ 0.2	+ 8	+ 5	M	04 11	2,4	5	4	150	70	18
	21--	04 11 22	KGLN	57.3S	..	..	..	..	M	04 11	2	4	--	--	--	18
04 11	00--	04 11 19	COLL	64.6N	..	..	..	..	MS	04 11	4,6	6	140	1070	770	18
	0014	04 11 23	NEWP	55.1N	..	..	..	..	M	04 11	2	5	24	94	115	18
04 13	0438	-- -- --	COLL	64.6N	SC *	-18	+42	-48	-	-- --	-	-	--	--	--	19
	0439	04 13 18	SITK	60.0N	SC *	- 7	+76	+15	S	04 13	5	9	270	1450	1130	19
	0438	04 14 02	NEWP	55.1N	SC *	4	63	--	MS	04 13	5	7	61	368	318	19
	0438	04 13 18	WITT	54.1N	SC *	- 5 *	+30	0	MS	04 13	5	6	20	215	80	19
	0434	04 14 01	FRED	49.6N	SC *	- 2	+55	- 8	MS	04 13	5	6	32	245	80	19
	0439	04 13 20	BOUL	49.0N	SC *	- 3	+54	--	MS	04 13	4,5	6	31	200	90	19
	0440	04 14 18	IRKU	40.8N	SC *	5.0	61	5	MS	04 13	4	7	22	219	90	19
	0438	04 23 09	TUCS	40.4N	SC	- 1	+50	+ 3	MS	04 14	3	7	21	230	20	19
	0438	04 14 01	SJUA	29.9N	SC	+ 0.5	+28	+08	M	04 13	3,4,5,6	5	10	122	31	19
	0438	04 13 18	ALIB	9.5N	SC	- 0.6	48	-10	MS	04 13	4,5	6	4	320	32	19
	0432	04 14 01	HYDE	7.6N	SC	- 0.7	+55	- 7 *	MS	04 13	5	7	5	322	25	19
	0438	04 14 02	GUAM	4.0N	SC *	--	44	14	MS	04 13	4	6	0	170	30	19
	0438	04 13 18	ANNA	1.5N	SC *	- 2.2	94	29	MS	-- --	-	-	5	368	74	19
	0438	04 13 18	TVAN	1.1S	SC *	0.9	90	09	MS	-- --	-	-	3	391	273	19
	0438	04 13 20	APIA	16.1S	SC	0	+30	-11	M	04 13	3,4	5	4	138	32	19
	0438	04 23 18	PMOR	18.6S	SC *	+ 0.9*	+43 *	+42 *	MS	04 14	3	7	10	270	130	19
	0439	04 13 21	HRMN	33.3S	SC *	+ 4 *	+15	+ 8	MS	04 13	5	6	18	186	95	19
	0439	04 13 19	GNAN	43.2S	SC	+ 1	-25	+ 3	MS	04 13	5	6	27	190	200	19
	0439	04 13 18	KGLN	57.3S	SC	--	--	--	MS	04 13	5	7	--	--	--	19
04 14	0243	04 14 22	COLL	64.6N	SC *	-23	+80	-78	S	04 13	5	8	367	2020	1210	20
	0249	04 14 22	SITK	60.0N	SC	- 7	+64	+21	S	04 14	3	9	110	1040	470	20
	0247	04 15 06	NEWP	55.1N	SC	3	55	3	S	04 14	3	9	78	867	452	20
	0247	04 14 18	WITT	54.1N	SC	- 2	+16	0	MS	04 14	3,5	6	20	190	40	20
	0247	04 15 05	FRED	49.6N	SC	+ 1	+50	- 6	MS	04 14	3	6	22	212	180	20
	0247	04 15 07	BOUL	49.0N	SC	+ 1	+48	--	MS	04 14	3	6	29	215	145	20
	0247	04 15 04	SJUA	29.9N	SC	+ 0.1	+28	+10	M	04 14	3	6	10	85	22	20
	0244	04 14 22	ALIB	9.5N	SC	0.0	32	- 5	MS	04 14	3	6	4	207	48	20
	0248	04 15 03	HYDE	7.6N	SC	+ 0.5	+37 *	- 5 *	MS	04 14	3	7	5	225	35	20
	0248	04 23 17	GUAM	4.0N	SC *	--	41	11	MS	04 14	3	7	0	180	30	20
	0244	04 14 22	ANNA	1.5N	SC *	- 1.0	64	16	MS	-- --	-	-	7	338	106	20
	0244	04 14 22	TVAN	1.1S	SC *	0.6	59	67	MS	-- --	-	-	4	411	388	20
	0247	04 15 12	APIA	16.1S	SC	0	+22	- 8	MS	04 14	3	6	5	178	47	20
	0247	04 15 03	HRMN	33.3S	SC	+ 4	+ 3	--	MS	04 14	3	6	21	117	69	20
	0247	04 14 18	GNAN	43.2S	SC *	-01 *	+12 *	- 3 *	MS	04 14	3	6	26	120	120	20
	0249	04 14 21	KGLN	57.3S	SC	--	--	--	M	04 14	3,5	5	--	--	--	20
04 15	20--	04 23 18	NEWP	55.1N	..	..	..	..	MS	04 17	2	7	80	310	299	21
	01--	04 23 12	FRED	49.6N	..	..	..	..	MS	04 21	1	6	30	168	91	21
	20--	04 16 21	IRKU	40.8N	..	..	..	..	MS	04 16	4,5	6	25	125	85	21
	2000	04 19 00	HYDE	7.6N	..	..	..	..	MS	04 16	5	6	6	118	33	21
	20--	04 17 --	KGLN	57.3S	..	..	..	..	MS	04 16	5	7	--	--	--	21
04 16	00--	04 23 18	COLL	64.6N	..	..	..	..	MS	04 16	3,4	7	267	1680	1230	21
										04 17	3,4	7				21
										04 18	4	7				21
										04 19	3	7				21
										04 21	4	7				21
										04 22	3,6	7				21
	00--	04 23 17	SITK	60.0N	..	..	..	..	S	04 22	3	9	120	1580	790	21
	02--	04 23 17	WITT	54.1N	..	..	..	..	MS	04 16	4,5,6	6	35	260	105	21
										04 17	1	6				21
										04 19	7	6				21
										04 20	6,7	6				21
										04 21	6	6				21
	00--	04 24 14	BOUL	49.0N	..	..	..	..	MS	04 17	2	6	35	135	90	21
										04 18	1,4	6				21
										04 21	1	6				21
										04 22	1,2,3	6				21

PRINCIPAL MAGNETIC STORMS

APRIL 1973

DATE 1973 MO DA	STORM TIME UT START	STORM TIME UT END MO DA HR	OBS	GEO-MAG LAT.	SUDDEN COMMENCEMENT TYPE	AMPLITUDES D(°)	AMPLITUDES H(γ)	AMPLITUDES Z(γ)	C FIGURE DEGREE OF ACTIVITY	MAXIMAL ACTIVITY ON K-SCALE 0 TO 9 MO DA	3-HOUR PERIOD	K INDEX	RANGES D (°)	RANGES H (γ)	RANGES Z (γ)	STORM NUMBERS
04 16	23--	04 19 15	IRKU	40.8N	..	..	..	..	MS	04 18	4	6	18	146	34	21
	01--	04 23 17	APIA	16.1S	..	..	..	..	M	04 16	3					21
										04 18	4					21
										04 22	3	5	5	103	26	21
	00--	04 23 17	HRMN	33.3S	..	..	..	..	M	04 16	4	5	29	117	82	21
										04 17	1,7	5				21
										04 18	8	5				21
										04 19	1,7,8	5				21
										04 20	1,2,7	5				21
										04 21	1,7	5				21
	00--	04 23 18	GNAN	43.2S	..	..	..	..	MS	04 16	5,7	6	28	140	170	21
										04 17	5	6				21
										04 21	4,5	6				21
04 19	17--	04 22 18	IRKU	40.8N	..	..	..	..	M	04 19	7,8	5	19	138	53	21
										04 20	2,4,6,7	5				21
										04 21	1,4,5	5				21
										04 22	3,5,6	5				21
	1800	04 22 18	HYDE	7.6N	..	..	..	..	M	04 21	6	5	4	91	28	21
04 25	17--	04 27 15	COLL	64.6N	..	..	..	..	MS	04 27	3	7	149	1240	630	22
	18--	05 01 08	TUCS	40.4N	..	..	..	..	MS	04 29	1,3	6	17	110	20	22
	18--	04 26 07	KGLN	57.3S	..	..	..	..	M	04 25	7,8	4	--	--	--	22
04 26	1225	04 27 15	NEWP	55.1N	..	..	..	..	M	04 27	1,2,3,4	5	29	121	166	22
	12--	05 01 06	FRED	49.6N	..	..	..	..	M	04 26	7	5	17	177	107	22
										04 27	1,2,3	5				22
										04 29	1,2,3	5				22
	19--	04 30 13	HRMN	33.3S	..	..	..	..	M	04 26	7,8	5	28	108	112	22
										04 27	1,5	5				22
										04 28	1,5,7	5				22
										04 29	5,7	5				22
	19--	04 27 17	GNAN	43.2S	..	..	..	..	M	04 26	7	5	15	120	100	22
										04 27	3,4	5				22
	19--	04 27 18	KGLN	57.3S	..	..	..	..	M	04 26	7,8	5	--	--	--	22
04 28	07--	04 30 13	COLL	64.6N	..	..	..	..	MS	04 29	5	7	182	2000	940	23
										04 30	3	7				23
	07--	04 30 12	SITK	60.0N	..	..	..	..	MS	04 29	3,5	7	70	900	760	23
	1153	05 01 08	NEWP	55.1N	SC	4	22	--	MS	04 29	1,2,3,5	6	43	184	261	23
	09--	04 29 23	WITT	54.1N	..	..	..	..	MS	04 28	8	6	35	230	80	23
										04 29	1,7	6				23
	12--	05 01 09	BOUL	49.0N	..	..	..	..	MS	04 29	1,2,3	6	32	105	80	23
	09--	04 29 22	IRKU	40.8N	..	..	..	..	MS	04 28	5	6	30	151	46	23
										04 29	5	6				23
	1000	04 29 23	HYDE	7.6N	..	..	..	..	M	04 28	5	5	5	138	26	23
										04 29	5					23
	07--	04 30 03	APIA	16.1S	..	..	..	..	M	04 29	3	5	5	119	28	23
	0911	04 30 18	PMOR	18.6S	..	..	..	..	M	04 28	5	5	6	100	50	23
										04 29	3	5				23
	10--	04 30 10	GNAN	43.2S	..	..	..	..	MS	04 29	5	6	20	90	110	23
	20--	04 30 00	KGLN	57.3S	..	..	..	..	M	04 28	8	5	--	--	--	23
										04 29	1,6,7,8	5				23

Reports were received from the following observatories:

College Sitka, Witteveen Newport, Fredericksburg Boulder, Irkutsk Tucson, San Juan Alibag, Hyderabad Guam, Annamalainagar Trivandrum, Apia Port Moresby, Hermanus Gnangara, Port-aux-Francais

SUDDEN COMMENCEMENTS AND SOLAR FLARE EFFECTS

APRIL 1973

PRELIMINARY REPORT ON RAPID MAGNETIC VARIATIONS (by Dr. A. Romana)

The meaning of the station symbols is given in the IAGA-Bulletins nr. 12 and 32. Times of ssc, si and bay-commencements are mean values. If given by ten or more stations they are underlined.

Sudden commencements followed by a magnetic storm or a period of storminess (ssc)

10 2110 A: LG; B: MA PM PP; C: WN IK EB PE DU (si: B: FU FR LM; C: TL)

13 0438 A: SO DO NU SI MA VI FU OT LG IK CI FR PE SZ PM HU TN LM KG DU; B: LE ES WN WI NI EB TL KA PP GN

14 0247 A: SO OT LG CI TL FR PE SZ PM LM; B: DO NU LE SI ES WN WI MA VI IK EB PP GN DU; C: KA KG (si: A: FU; B: NI HU)

Sudden impulses found in the magnetograms (si)

none

Rapid variations in form of bays (b, bs, bp, bps)

09 0008 bp: A: LG CI; B: SO WI FU IK EB SZ; C: TL LM

Giant pulsations (pg)

07	0710 - 1300	NUA
09	0800 - 1020	NUA
14	0545 - 0600	SIA

Solar-flare effects (sfe)

Effects confirmed by ionospheric or solar observations are underlined.

02	0824 - 0831	SZ	11	1053 - 1101	MA (bps: B: PP)
04	1132 - 1147	MA	11	1842 - 1900	TL FR HU
09	1745 - 1757	HU	23	0751 - 0758	SZ
10	1224 - 1242	WN WI IK EB TL PE			

RADIO PROPAGATION QUALITY FIGURES AND FORECASTS

APRIL 1973

North Atlantic

APR. 1973	WHOLE DAY INDICES NORTH ATLANTIC	ADVANCE FORECASTS (JC-REPORTS) FOR WHOLE DAY	NORTH ATLANTIC								GEOMAGNETIC INDICES		
			6-HOURLY QUALITY FIGURES				SHORT-TERM FORECASTS ISSUED ABOUT ONE HOUR IN ADVANCE OF				K_{FR}		A_{FR}
			00 TO 06	06 TO 12	12 TO 18	18 TO 24	02	08	14	20	HALF DAY (1)	HALF DAY (2)	OBSERVED
01	5-	6	5o	4+	5-	4+	5	5	6	4	3	(6)	67
02	4+	6	3+	4-	6-	5o	4	4	4	4	(5)	3	37
03	4+	6	4o	3-	5-	5+	5	5	5	6	(4)	3	22
04	6-	6	6-	4+	6o	6+	5	6	6	6	3	2	10
05	6o	6	6+	5-	7-	6o	6	6	6	6	3	1	8
06	6+	6	7-	5o	6+	7o	6	6	7	6	2	1	6
07	6+	6	7-	6-	6+	7-	6	6	7	7	1	1	3
08	7-	6	7-	6o	7-	7-	6	6	6	6	1	2	6
09	7-	6	7-	6+	7-	7-	7	6	7	7	2	1	6
10	7-	6	7-	7-	7-	7-	7	7	7	6	1	1	3
11	6o	6	6+	5+	6o	6+	7	6	6	6	(4)	2	19
12	6+	6	6+	6-	7-	7-	6	6	6	6	1	1	4
13	6-	6	7-	6+	5-	5+	6	6	6	4	(4)	(4)	32
14	5-	5	5+	3o	4+	6-	5	5	5	5	(5)	(4)	33
15	6o	4	6-	5o	7-	6+	4	5	6	6	3	2	9
16	5+	4	6-	4o	6-	6-	6	6	6	5	(4)	(5)	35
17	4+	4	5-	3o	5o	5-	4	4	5	5	(5)	(4)	29
18	4o	4	4o	3+	4o	4+	4	4	4	4	(5)	(4)	35
19	4o	4	4+	3o	5-	4+	4	4	5	5	(5)	(4)	32
20	4+	4	4+	4o	5-	4+	4	4	5	5	(5)	(4)	33
21	4+	4	4+	4-	4+	4+	4	4	5	5	(5)	(4)	34
22	5-	5	4o	4o	5+	5o	4	4	5	4	(5)	(4)	36
23	5o	5	4+	5-	5+	6-	4	4	6	5	(5)	3	26
24	6-	5	6-	5+	6-	6o	5	5	6	6	3	2	13
25	6-	6	6-	5o	6o	6-	5	6	7	6	3	2	14
26	4+	6	4+	4o	5o	4+	6	6	6	5	3	(4)	20
27	4o	5	4o	3-	5-	5o	4	5	6	5	(5)	2	26
28	6-	4	6-	6-	6-	5+	5	5	6	5	3	(4)	19
29	5o	4	5-	4-	5+	6o	6	4	5	4	(5)	(4)	36
30	5+	4	5+	4-	6+	6-	4	4	6	5	3	3	17

RADIO PROPAGATION QUALITY FIGURES AND FORECASTS

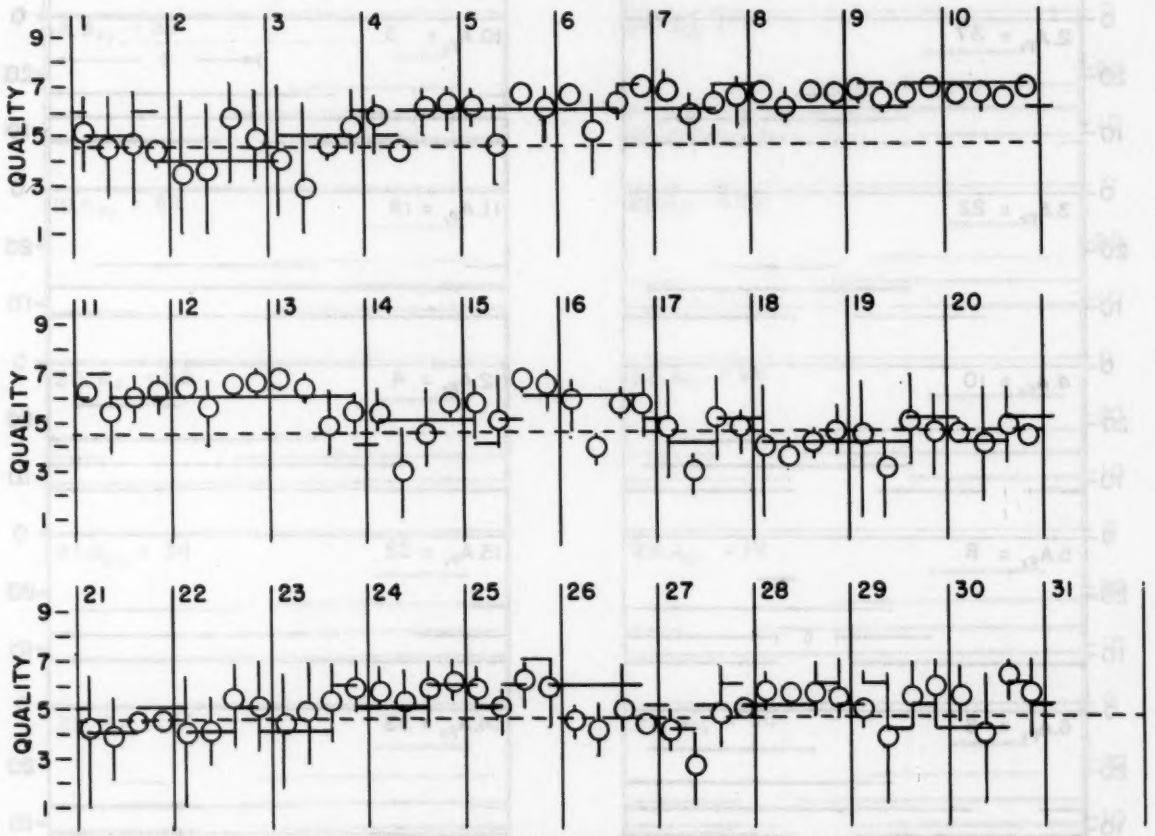
APRIL 1973

North Atlantic

– Short term forecast
o Quality figure

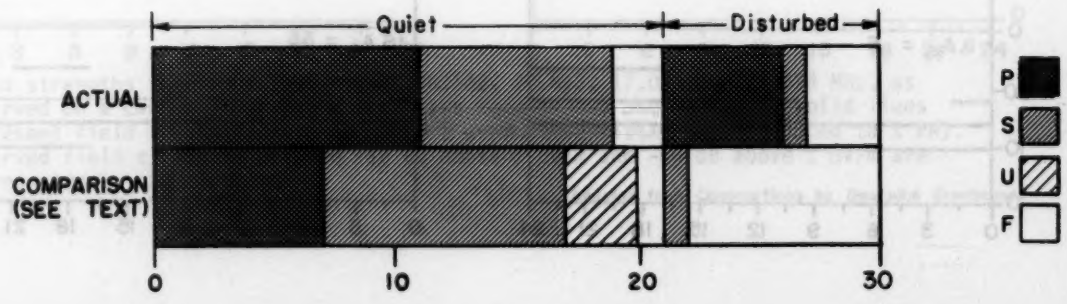
| range of reports

Day



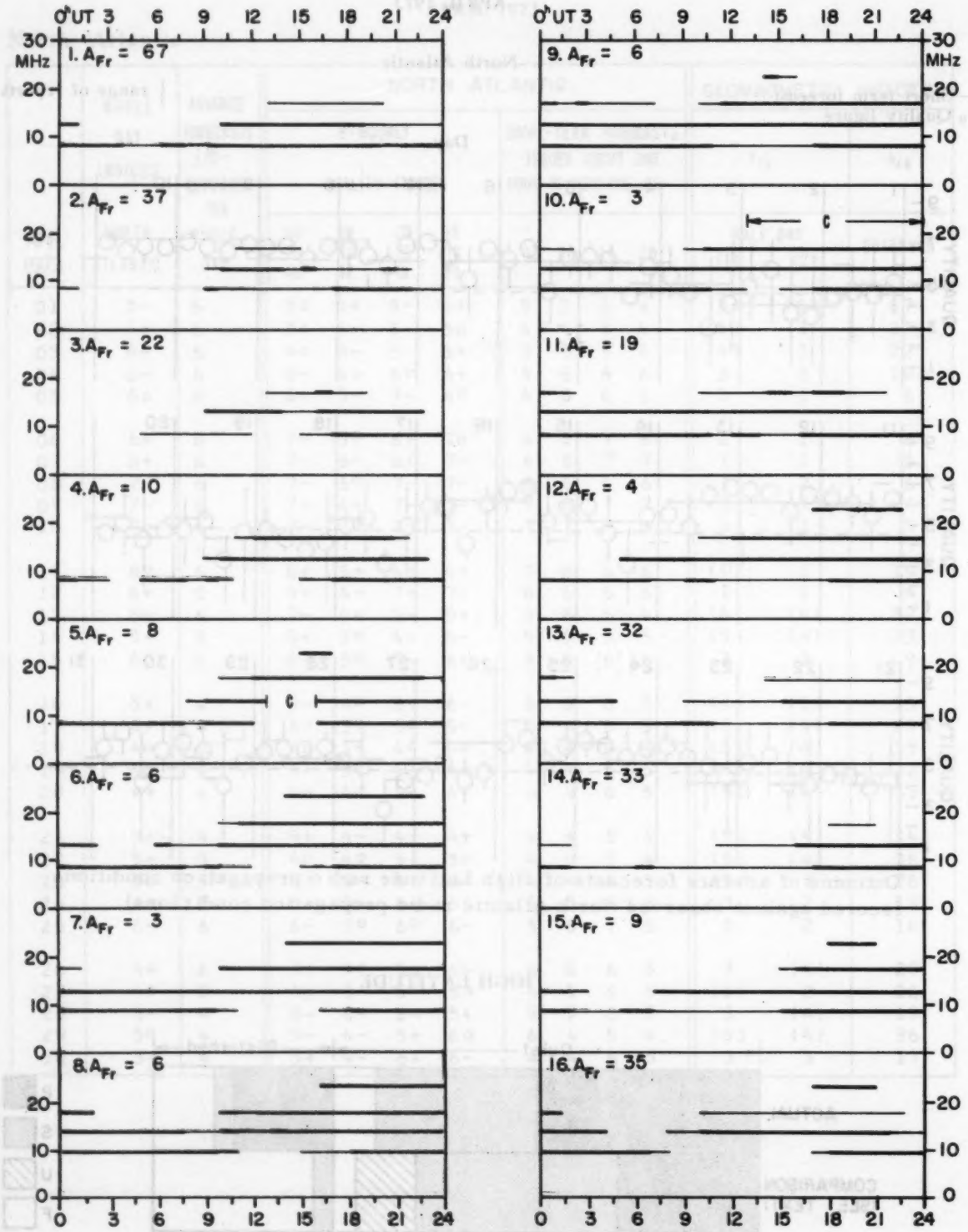
Outcome of advance forecasts of High Latitude radio propagation conditions (scored against observed North Atlantic radio propagation conditions)

HIGH LATITUDE



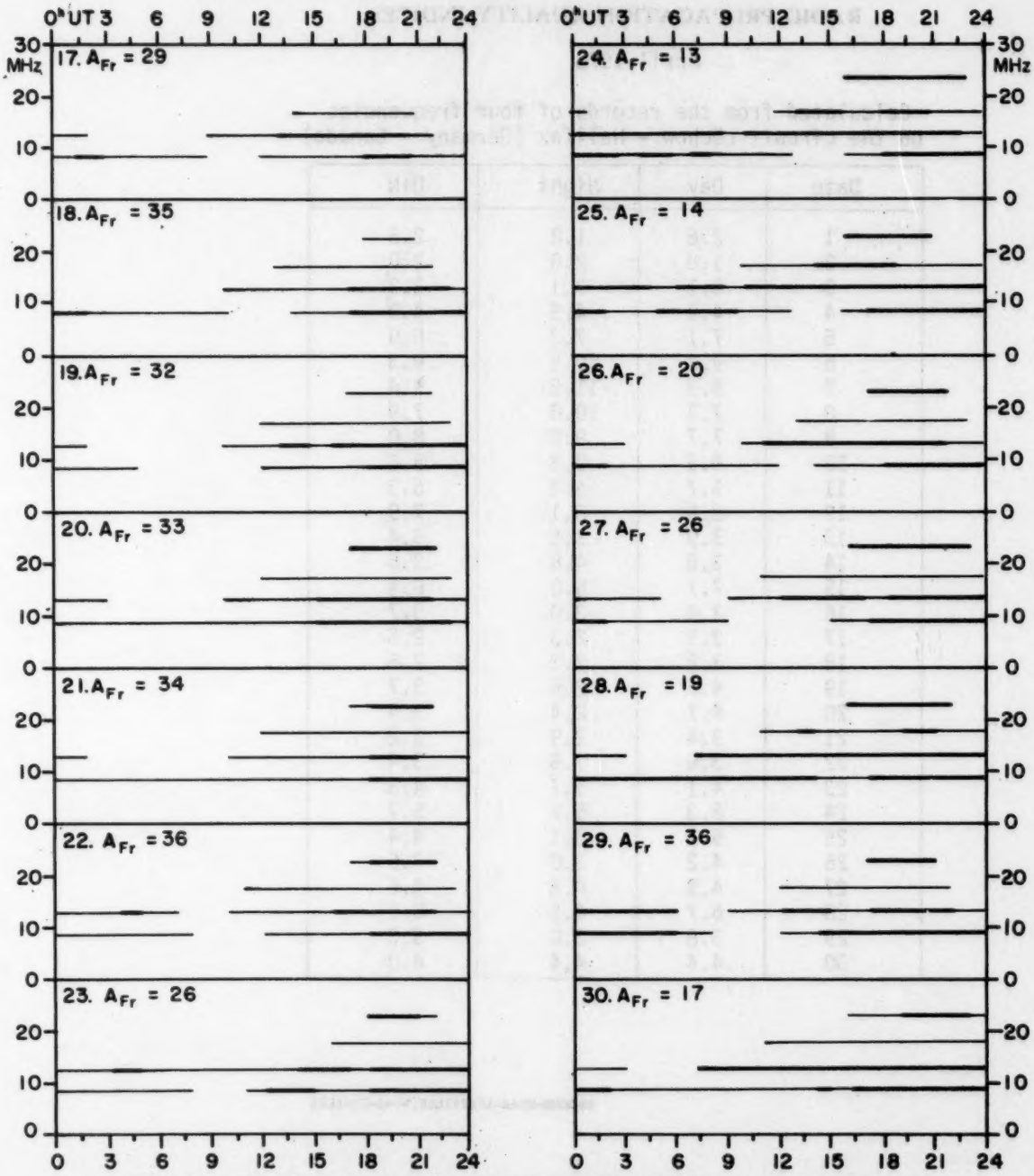
TRANSMISSION FREQUENCY RANGES -- NORTH ATLANTIC PATH

APRIL 1973



TRANSMISSION FREQUENCY RANGES -- NORTH ATLANTIC PATH

APRIL 1973



Field strengths from four frequencies, 8.542, 12.813, 17.084 and 22.378 MHz, as observed on a Lüchow - Halifax circuit are represented above. Heavy solid lines represent field strengths ≥-12 dB above 1 μv/m (transmitter power reduced to 1 kW). Observed field strengths between -12 dB above 1 μv/m and -40 dB above 1 μv/m are represented by the fine line.

Adapted from Observations by Deutsche Bundespost

RADIO PROPAGATION QUALITY INDICES

April 1973

Calculated from the records of four frequencies
on the circuit Lüchow - Halifax (Germany - Canada)

Date	Day	Night	D+N
1	2.6	1.8	2.5
2	1.8	2.0	2.0
3	3.1	3.1	3.2
4	4.9	4.5	4.9
5	7.1	7.3	6.9
6	9.2	10.5	9.3
7	9.3	11.2	9.4
8	7.7	10.0	7.9
9	7.7	9.8	8.0
10	8.5	9.3	8.2
11	5.7	4.8	5.3
12	8.8	8.1	7.9
13	3.9	3.5	3.4
14	3.6	4.8	3.6
15	7.7	6.0	6.4
16	4.4	3.0	3.7
17	2.8	2.3	2.5
18	3.2	2.2	2.6
19	4.5	2.8	3.7
20	4.1	2.4	3.4
21	3.4	2.9	3.2
22	3.6	3.3	3.4
23	4.1	5.7	4.3
24	6.3	5.2	5.7
25	5.7	3.1	4.4
26	4.2	3.0	3.6
27	4.9	4.8	4.6
28	6.7	4.5	5.6
29	3.8	3.0	3.2
30	4.4	4.4	4.0

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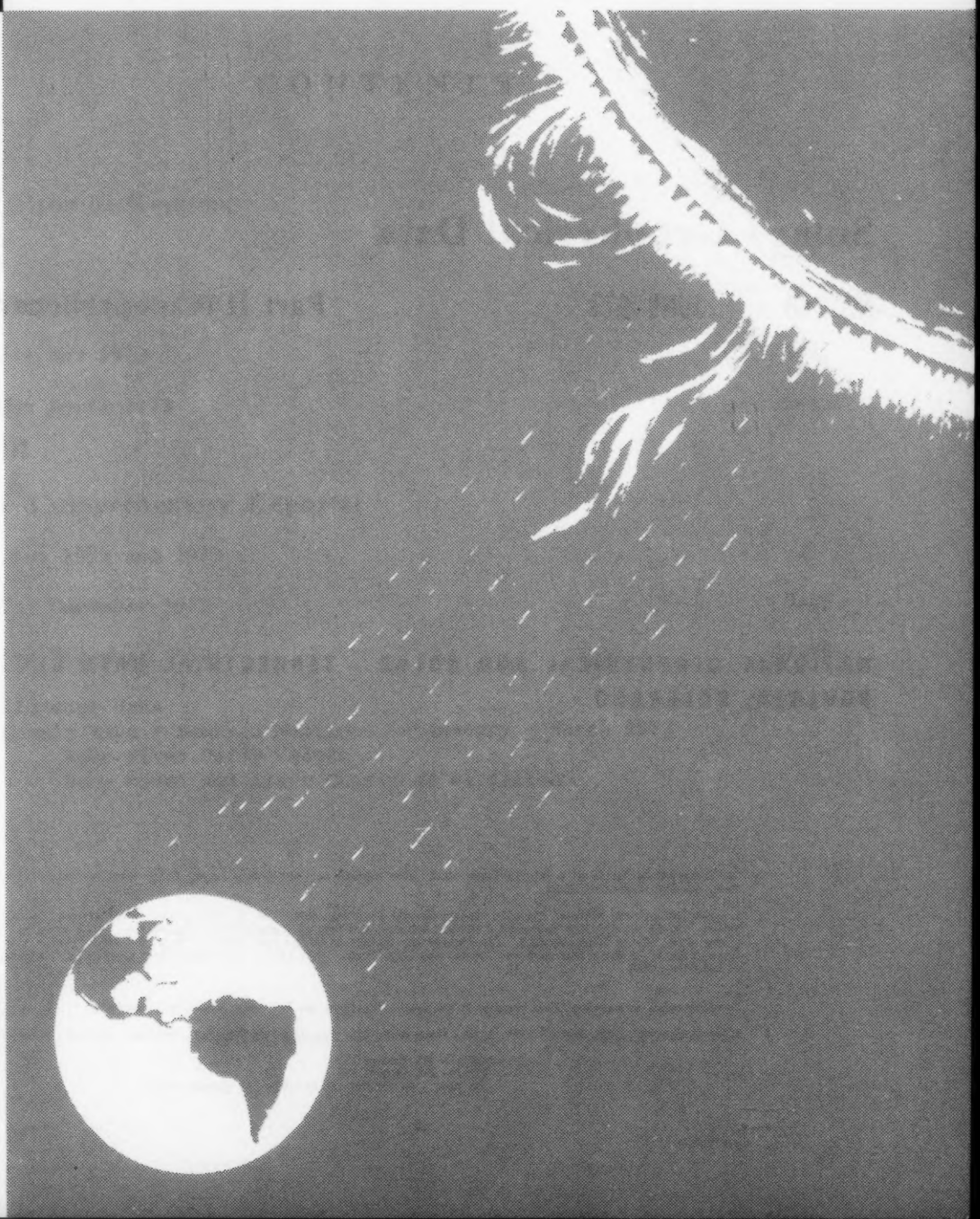

JUNE 1973

NUMBER 346-PART II
DATA FOR
DECEMBER 1972
NOVEMBER 1972
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Solar - Geophysical Data

NO. 346 JUNE 1973

Part II (Comprehensive Reports)

DATA FOR
DECEMBER 1972
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* * * * *

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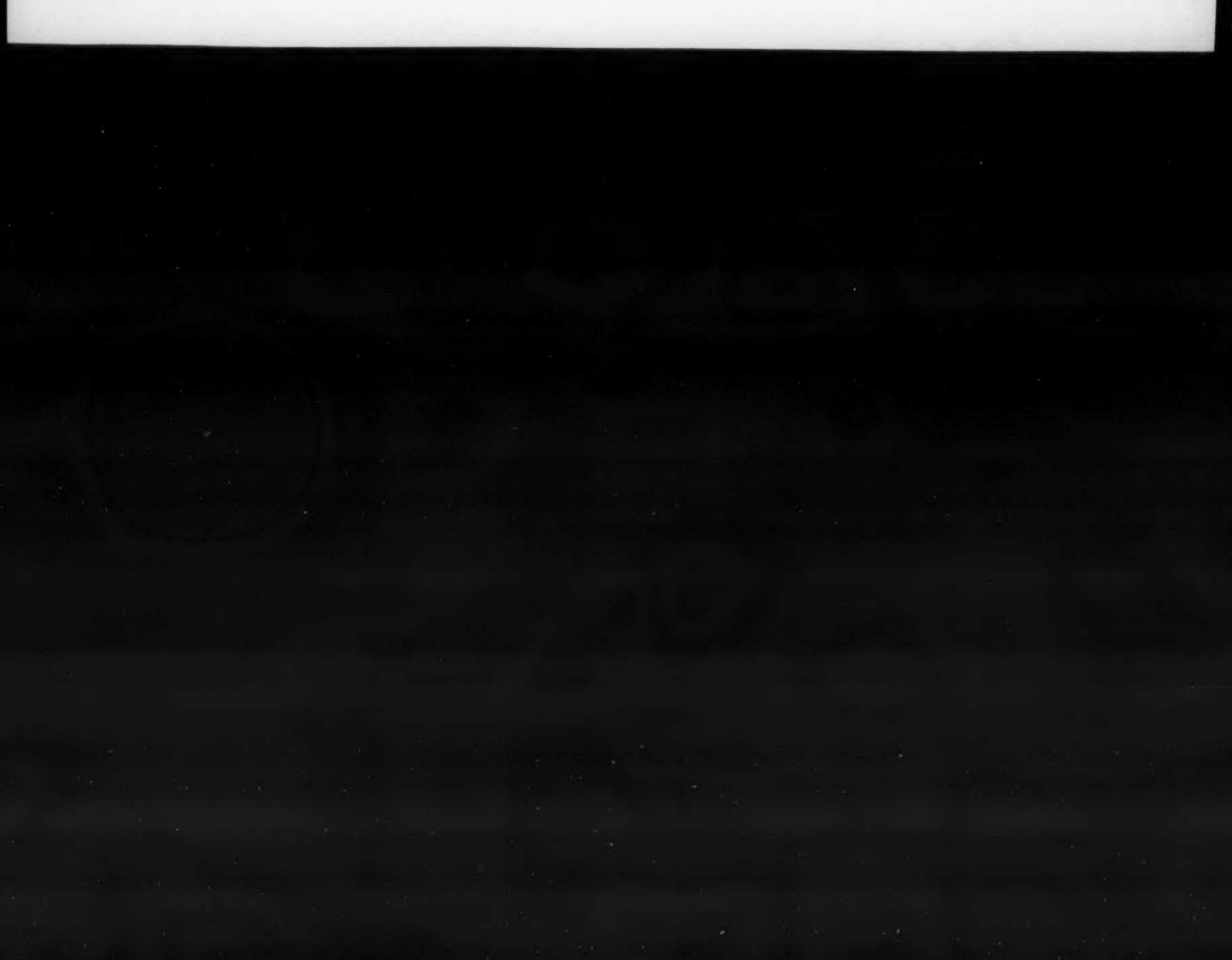

SOLAR - GEOPHYSICAL DATA

No. 346

Issued in two parts

Hope I. Leighton, Editor

J. Virginia Lincoln, Director
Solar - Terrestrial Data Services Division

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A.12bb	Cosmic Ray Protons (Pioneers 8 & 9)	337	338	339	340	341	342	343	344	345	346
A.12c	Cosmic Ray Protons (ATS-1)	337									
A.13a	Solar Wind (Pioneers 6 & 7)	337	---	339	340	341	342	---	---	---	346
A.13c	Solar Wind (Vela 6B)										
A.17	Interplanetary Magnetic Field (Pioneer 8)	---	---	339	340	---	342	---	---	---	346
A.17	Interplanetary Magnetic Field (Pioneer 9)	337	338	339	340	341	342	343	344	345	346
A.18	Interplanetary Electric Field (Pioneer 8)	---	---	339	340	---	342	---	---	---	346
A.18	Interplanetary Electric Field (Pioneer 9)	337	338	339	340	341	342	343	344	345	346
B.	Ionospheric (and Radio Wave Propagation) Phenomena										
B.51ca	High Latitude Quality Figures and Forecasts	338	339	340	341	342	343	344	345	346	
B.51cb	High Latitude Comparison Graphs	338	339	340	341	342	343	344	345	346	
B.52	Graphs of Transmission Frequency Range	338	339	340	341	342	343	344	345	346	
B.53	Quality Figures based on Frequency Ranges	338	339	340	341	342	343	344	345	346	
C.	Flare-Associated Events										
C.1a	Optical Observations Flares	337	338	339	340	341	342	343	344	345	346
C.1ba	Optical Observations Flares (Including Standardized Data)	342	343	344	345	346					
C.1d	Flare Patrol Observations	337	338	339	340	341	342	343	344	345	346
C.1e	Flare Indices (by day)	342	343	344	345	346					
C.1f	Flare Index by Region	343	344	345	346						
C.3	Solar Radio Waves - Fixed Frequencies - Outstanding Occurrences	342	343	344	345	346					
	Solar Radio Waves - Fixed Frequencies - Selected	337	338	339	340	341	342	343	344	345	346
C.3t	43.25, 80 and 180 MHz Selected Bursts (Culgoora)	---	---	---	---	342	344	344	345	346	
C.4aa	10-2000 MHz - (Fort Davis)	338	339	340	341	342	343	344	345	346	
C.4b	7.6-80 MHz - (University of Colorado)	338	339	340	341	342	343	344	345	346	
C.4d	8-8000 MHz - (Culgoora)	338	339	340	341	342	343	344	345	346	
C.4e	30-1000 MHz - (Weissenau, G.F.R.)	338	339	340	341	342	343	344	345	346	
C.4f	24-48 MHz - (AFCRL, Sagamore Hill)	338	339	340	341	342	343	344	345	346	
C.5b	Solar X-ray Radiation (Explorer 35)										
C.5c	Solar X-ray Radiation (Explorer 44)	338	339	340	341	342	343	344	345	346	
C.6	Sudden Ionospheric Distrubances	338	339	340	341	342	343	344	345	346	
D.	Geomagnetic and Magnetospheric Phenomena										
D.1a	Geomagnetic Indices Ci, Cp, Kp, Ap - Selected Days	338	339	340	341	342	343	344	345	346	
D.1b	27-Day Chart of Kp Indices for Year	342	342	342	342	342					
D.1c	27-Day Chart of C9 for Year	342	342	342	342	342					
D.1d	Principal Magnetic Storms	338	339	340	341	342	343	344	345	346	
D.1e	Reduced Magnetograms	342	343	---	345	346					
D.1f	Sudden Commencement and Solar Flare Effects	338	339	340	341	342	343	344	345	346	
F.	Cosmic Rays										
F.1a	Cosmic Ray Neutron Counts (Deep River)						346	346	346		
F.1b	Cosmic Ray Neutron Counts (Climax)										
F.1c	Cosmic Ray Neutron Counts (Dallas)	338	339	340	341	343	343	344	345	346	
F.1d	Cosmic Ray Neutron Counts (Churchill)										
F.1e	Cosmic Ray Neutron Counts (Alert)						346	346	346		
F.1f	Cosmic Ray Neutron Counts (Calgary)	338	339	340	341	342	343	344	345	346	
F.1g	Cosmic Ray Neutron Counts (Sulphur Mountain)	338	339	340	341	342	343	344	345	346	
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For explanations of the data contained herein see "Descriptive Text" published as supplement to February 1973 "Solar-Geophysical Data" (Number 342).

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OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS					REMARKS
	DATE DEC	START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	NOAA PLAGE REGION	CMP DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hg	MAX. INT. %	
	01	1210	1238	NO FLARE PATROL															
	01	1321	1326	NO FLARE PATROL															
	01	1506	1511	NO FLARE PATROL															
	01	1521	1524	NO FLARE PATROL															
	01	1547	1612	NO FLARE PATROL															
	01	1716	1913	NO FLARE PATROL															
	01	1948	2208	NO FLARE PATROL															
	02	1524	1534	NO FLARE PATROL															
	02	1629	2137	NO FLARE PATROL															
GRP46933	02	2322	2336	2326	S17	W54	.830	12126	28.9	14	1F				1.24				2 2 2 2
VORO	02	2322	2332	2324	S16	W53	.823	12126	29.0	10	1N		C	2324	1.29	2.21		60	E
CULG	02	2322	2340	2327	S15	W55	.835	12126	28.8	18	1F		C	2327	1.19	2.10			
	03	0301	0312	NO FLARE PATROL															
	03	0408	0426	NO FLARE PATROL															
	03	0431	0612	NO FLARE PATROL															
	03	0638	0726	NO FLARE PATROL															
934 CATA	03	1020	1035	1025	S11	W60	.872	12126	28.9	15	--F	2		1025	.29	.59		(141)	2
	03	1523	1621	NO FLARE PATROL															
	03	1631	1638	NO FLARE PATROL															
	03	1649	1655	NO FLARE PATROL															
	03	1905	1935	NO FLARE PATROL															
	03	1953	2157	NO FLARE PATROL															
	03	2329	2344	NO FLARE PATROL															
	04	1020	1027	NO FLARE PATROL															
	04	1043	1045	NO FLARE PATROL															
	04	1449	1458	NO FLARE PATROL															
	04	1528	2138	NO FLARE PATROL															
	04	2335	2351	NO FLARE PATROL															
938 RAMY	05	1325	1339	1327	S19	W24	.508	12132	3.8	14	--F	3	C		.28				DE 1
939 RAMY	05	1910	1931	1915	N11	E86	.998	12136	12.2	21	--F	3	C						DE 2
GRP46941	06	1328	1335	1325	N11	E70	.942	12136	11.8	15	--F				.32				4 4 3 7
CAPS	06	1317E	1330D		N10	E70	.941	12136	11.8	13D	-F	3	V	1320	.40				C
RAMY	06	1318	1330	1319	N12	E69	.936	12136	11.7	12	-N	3	C						DE
ARCE	06	1320E	1335D		N13	E71	.948	12136	11.9	15D	-F		C	1325	.40				
RAMY	06	1322E	1335		N11	E69	.936	12136	11.7	13D	-F	3	V						DE
CATA	06	1325	1335	1325	N09	E70	.941	12136	11.8	10	-F	2		1325	.17			(148)	
944 RAMY	06	1933	1946	1936	N12	E67	.924	12136	11.8	13	--F	2	C						DE 3
	06	2321	2345	NO FLARE PATROL															
GRP46946	07	0654E	0716	0656	N11	E58	.854	12136	11.6	22	--F				.91				2 1 1 4
TEHR	07	0654E	0716	0656	N11	E58	.854	12136	11.6	22D	-F	1	C		.91				F
ATHN	07	0705E	0717	0708	N11	E59	.863	12136	11.7	12D	-N	1	C		.66				F
	07	1957	2015	NO FLARE PATROL															
	07	2017	2048	NO FLARE PATROL															
	07	2049	2101	NO FLARE PATROL															

Note: Catania and Capri-S express Maximum Intensities in percent of the local undisturbed chromosphere instead of percent of the local continuum. Parentheses are used to indicate this difference.

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS					REMARKS
					APPROX.		CENTRAL	MCMATH	CMP										
	DATE DEC	START	END	MAX. PHASE	LAT.	MER-DIST.	DISTANCE	PLAGE REGION	DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT. %	
	07	2121	2138	NO FLARE PATROL															
	07	2147	2220	NO FLARE PATROL															
GRP46958	08	0242	0311	0247	N18	E52	.795	12136	12.0	29	-N				.93				3 3 3 3
VORO	08	0242	0310D	0245	N12	E52	.798	12136	12.0	28D	1N		C	0245	1.47	2.32		74	EJL
CRON	08	0244E	0257	0244U	N09	E52	.794	12136	12.0	13D	-F	2	V	0244	.60				
MANI	08	0252E	0325	0252	N09	E52	.794	12136	12.0	33D	-N	2		0252	.72	1.18			
	08	0310	0318	NO FLARE PATROL															
951 MANI	08	0735	0820	0749	N11	E51	.786	12136	12.1	45	--F	2		0749	.41	.66			2
952 RAMY	08	1530E	1540	1530U	N11	E43	.696	12136	11.9	10D	--F	3	V		.37				DE 2
	08	1940	1946	NO FLARE PATROL															
	08	2037	2116	NO FLARE PATROL															
	08	2136	2154	NO FLARE PATROL															
GRP46953	08	2258	2345	2308	N10	E38	.631	12136	11.8	47	1N				2.33				3 3 3 3
CRON	08	2257	2322	2302	N10	E37	.618	12136	11.7	25	-F	2	C	2302	.54	.68			
CULG	08	2258	2352	2311	N10	E37	.618	12136	11.7	54	1B		C	2311	2.53	3.20			
MANI	08	2300E	0000	2310	N10	E40	.656	12136	12.0	60D	2B	2		2310	3.92	5.13			
	09	0351	0356	NO FLARE PATROL															
	09	1558	1609	NO FLARE PATROL															
GRP46955	10	0033	0208	0051	N11	E25	.458	12136	11.9	87	-N				1.98				5 5 5 5
CULG	10	0033	0253	0055	N12	E23	.437	12136	11.7	140	1N		C	0055	2.32	2.50			
MANI	10	0033	0200	0050	N11	E25	.458	12136	11.9	87	-N			0050	1.98	2.18			
MANI	10	0033	0200	0043	N11	E25	.458	12136	11.9	87	-N	2		0043	1.24	1.38			
PALE	10	0033	0156	0044	N12	E26	.478	12136	12.0	83	-B	2	V		1.44				Z F
PALE	10	0033	0156	0037	N12	E26	.478	12136	12.0	83	-N	2	V		1.03				Z F
CRON	10	0034E	0146	0055	N11	E26	.472	12136	12.0	72D	-N	3	V	0055	1.20				
CRON	10	0034E	0146	0048U	N09	E25	.447	12136	11.9	72D	-N	3	V	0048	.75				
VORO	10	0041E	0216		N12	E25	.464	12136	11.9	95D	1N		C	0049	2.96	3.13		77	EJL
GRP46956	10	0622	0640	0626	N12	E18	.369	12136	11.6	18	--F				.74				3 3 3 4
ABST	10	0621	0636	0626	N13	E19	.391	12136	11.7	15	-F		C	0626	1.35	1.50			EZ
ATHN	10	0623	0643	0626	N12	E18	.369	12136	11.6	20	-F	2	C		.33				DE
TEHR	10	0625E	0641	0627	N11	E17	.347	12136	11.5	16D	-N	3	C		.55				F
GRP46957	10	0812	0822	0817	N10	E21	.395	12136	11.9	10	--N				.50				3 3 3 8
ATHN	10	0812	0826	0816	N10	E21	.395	12136	11.9	14	-F	2	C		.33				DE
MONT	10	0812	0820	0816	N10	E20	.381	12136	11.8	8	-N		C	0816	.72				
TEHR	10	0813	0820	0818U	N10	E22	.409	12136	12.0	7	-N	3	C		.45				F
	10	1510	1750	NO FLARE PATROL															
958 RAMY	10	1755E	1810D		N10	E13	.284	12136	11.7	15D	-N	1	V						F 2
GRP46959	10	1846	1902	1848	N12	E15	.330	12136	11.9	16	--F				.31				2 2 1 3
PALE	10	1846	1902	1848	N12	E18	.369	12136	12.1	16	-N	2	V		.31				F
RAMY	10	1853E	1855D		N12	E12	.294	12136	11.7	2D	-F	1	V						F
GRP46960	11	0502	0523	0506	N12	E09	.263	12136	11.9	21	-F				.72				2 2 1 4
MANI	11	0501	0529	0508	N12	E07	.245	12136	11.7	28	-N	2		0508	.72	.74			
SIBE	11	0502	0516	0503	N12	E10	.273	12136	12.8	14	1F		V						FIKV
961 ATHN	11	0731	0741	0734	N12	E07	.245	12136	11.8	10	--F	1	C		.33				DE 3
963 ATHN	11	1000E	1005	1000U	N12	E04	.225	12136	11.7	5D	--F	1	C		.33				DE 5
964 MONT	11	1146	1155	1148	N11	E03	.204	12136	11.7	9	--N		C	1148	.21				2
965 MONT	11	1201	1208	1206	N11	E03	.204	12136	11.7	7	--N		C	1206	.21				3
966 MONT	11	1219	1245D	1236	S18	E14	.380	12137	12.6	26D	--N		C	1236	.41				H 3
967 HCMA	11	1403E	1438D		N23	E56	.859	12141	15.8	27D	--N		C	1415	.41	.70			EH 4
GRP46970	11	1512	1527	1514	S20	E52	.814	12139	15.5	15	--F				.53				2 2 2 3
BOUL	11	1512E	1523	1515	S21	E52	.817	12139	15.5	11D	-F	3	V	1515	.50	2.20			
RAMY	11	1513E	1530D	1513U	S18	E51	.800	12139	15.5	17D	-N	3	V		.56				DE

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OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.			MEASUREMENTS					REMARKS
	DATE DEC	START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY	MIN.		CONG.	TYPE		TIME — UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Ma	MAX. INT. %	
GRP46971	11	1722	1741	1725	N12	E01	.215	12136	11.8	19	--B					.73				4 4 4 4
BOUL	11	1721	1732	1725	N13	E01	.232	12136	11.8	11	-N	2	C		1725	.65	.65			
RAMY	11	1722	1745	1725U	N12	E02	.217	12136	11.9	23	-N	3	V			.83				DE
PALE	11	1722	1745	1725	N11	E03	.204	12136	11.9	23	-B	3	V			.83				DE
HCMA	11	1725E	1731D		N11	W03	.204	12136	11.5	6D	-B		P		1725	.62	.60			E
972 HCMA	11	1805E	1825		N10	W08	.226	12136	11.2	20D	--F		C		1816	.21	.20			DH 4
GRP46976	11	1945	2001	1948	N11	W01	.198	12136	11.7	16	--N					.60				J 3 3 6
RAMY	11	1945	1956	1947U	N12	W01	.215	12136	11.7	11	-N	3	V			.66				DE
PALE	11	1945	2005	1948	N11	E02	.200	12136	12.0	20	-B	4	V			.72				DE
PALE	11	1945	2005	1958	N11	E02	.200	12136	12.0	20	-F	4	V			.62				DE
HCMA	11	1946	1951D		N10	W05	.199	12136	11.4	5D	-N		P		1948	.41	.40			D
978 CULG	12	0144	0237	0149	N11	E02	.202	12136	12.2	53	1F		C		0149	2.89	2.90			3
GRP46986	12	1514	1530	1518	S20	E39	.680	12139	15.6	16	--F					.64				2 2 2 3
HUAN	12	1514	1527	1518	S19	E39	.675	12139	15.6	13	-N	2	C		1518	.67	.92			D
BOUL	12	1518E	1533	1518U	S20	E39	.680	12139	15.6	15D	-F	2	V		1518	.60	1.00			
987 HUAN	12	1635	1637	1635	S19	E39	.675	12139	15.6	2	--N	1	C		1635	.62	.84			D 2
988 BOUL	12	1805	1830	1810	S21	E38	.674	12139	15.6	25	-N	2	V		1810	.90	1.20			2
	12	1845	1852	NO FLARE PATROL																
	12	2240	2249	NO FLARE PATROL																
GRP46990	13	0330	0342	0333	N12	W12	.298	12136	12.2	12	--N					.44				4 4 3 4
SIBE	13	0330E	0345	0336	N11	W13	.299	12136	12.2	15D	1F		V							DI
CRON	13	0330	0339	0333	N12	W13	.310	12136	12.2	9	-N	3	V		0333	.30				
HITK	13	0330	0346	0331	N12	W12	.298	12136	12.2	16	-N		C		0331	.62	.60			E
PALE	13	0331E	0339D	0333U	N13	W11	.300	12136	12.3	8D	-N	1	V			.41				F
GRP46994	13	1032E	1057	1033	N11	W17	.350	12136	12.2	25	--N					.63				2 2 2 3
TEHR	13	1032E	1041D	1033U	N11	W18	.364	12136	12.1	9D	-N	1	V			.66				DE
CAPS	13	1033E	1057D		N10	W15	.314	12136	12.3	24D	-N	1	S		1035	.60	.60		(182)	
995 RAMY	13	1340	1354	1342U	N12	W20	.399	12136	12.1	14	--F	3	C			.56				DE 2
	13	1420	1425	NO FLARE PATROL																
996 HUAN	13	1602	1606	1604	S21	E26	.538	12139	15.6	4	--F	1	C		1604					3
997 BOUL	13	1647	1730	1652	N11	W28	.503	12136	11.6	43	--F	2	V		1652	1.70	2.00			1
998 PALE	13	2237	2244	2238	N10	W18	.356	12136	12.6	7	--F	3	V			.31				F 2
GRP47006	14	1238	1352	1248	N11	W40	.662	12136	11.5	74	-N					2.67				4 2 2 5
MONT	14	1229	1240D	1235	N13	W40	.669	12136	11.5	11D	-N		C		1235	.72				
RAMY	14	1236	1352	1248	N11	W39	.650	12136	11.6	76	-F	3	C			1.49				DE
CAPS	14	1238E	1352D		N11	W38	.637	12136	11.7	74D	-N	1	V		1304	1.20	1.80		(176)	
WEND	14	1257E	1330D		N11	W42	.687	12136	11.4	33D	1N		P			4.13				
GRP47007	14	1518	1534	1520	S20	E14	.401	12139	15.7	16	--N					.61				2 2 2 2
RAMY	14	1518	1537	1520	S19	E15	.398	12139	15.8	19	-N	3	C			.46				DE
BOUL	14	1518	1538	1520	S20	E13	.392	12139	15.6	12	-N	3	V		1520	.75	.75			
	14	1648	1707	NO FLARE PATROL																
	14	2244	2253	NO FLARE PATROL																
GRP47008	15	0539	0644	0551	S06	E47	.733	12143	18.8	65	1B					3.54				5 4 4 5
CULG	15	0522	0812	0544	S06	E47	.733	12143	18.7	170	2B		C		0544	4.64	6.70			
MANI	15	0536E	0655	0550	S05	E48	.744	12143	18.8	79D	1B	2			0550	3.09	4.77			
CRON	15	0541	0625	0558	S08	E46	.724	12143	18.7	44	1F	1	C		0558	1.61	2.27			
KODA	15	0550	0632	0550	S04	E48	.744	12143	18.8	42	1B		C		0550	4.82	4.80	2.64		EH
TEHR	15	0656E	0714D	0657U	S04	E50	.767	12143	19.0	18D	1N	1	C			2.56				F
009 RAMY	15	1340E	1348D	1340U	S20	E02	.329	12139	15.7	8D	--F	3	C			.37				DE 3
GRP47010	15	1652	1701	1653	S20	W02	.329	12139	15.6	9	--F					.46				2 2 1 2
RAMY	15	1650	1700	1652	S19	E00	.311	12139	15.7	10	-F	3	C			.46				DE
BOUL	15	1653	1701	1654	S20	W04	.334	12139	15.4	8	-F	1	V		1654					
011 RAMY	15	1810	1834	1813	N12	W61	.882	12136	11.2	24	--F	3	C			.46				DE 2

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	DATE DEC	START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT. %	
GRP47013	16	0344	0440	0349	N12	W57	.849	12136	11.9	56	1B				3.39				5 4 4 5
CULG	16	0341	0450D	0349	N12	W56	.840	12136	12.0	69D	1B		P	0349	2.48	4.70			
KODA	16	0346	0449	0346	N12	W58	.857	12136	11.8	63	1B		C	0346	5.81	5.80	5.20		GEMU
MANI	16	0346E	0428	0348	N11	W57	.847	12136	11.9	42D	1B	1		0348	1.55	1.77			
TEHR	16	0354E	0434	0354U	N12	W58	.857	12136	11.8	40D	2B	2	C		3.71				F
MITK	16	0408E	0445D		N11	W58	.856	12136	11.8	37D	1N		C	0408	2.48	4.80			E
GRP47014	16	0503E	0519	0506	S05	E36	.590	12143	18.9	16	-N				1.28				2 2 2 3
TEHR	16	0503E	0520	0505U	S03	E36	.588	12143	18.9	17D	-N	1	C		1.73				F
MANI	16	0504E	0518	0507	S07	E36	.593	12143	18.9	14D	-N	1		0507	.83	1.02			
016 TEHR	16	0628	0638	0632	S18	W10	.336	12139	15.5	10	-N	2	C		1.09				F 2
	16	1315	1432	NO FLARE PATROL															
018 RAMY	16	1436E	1442D	1436U	S04	E28	.471	12143	18.7	6D	--F	3	V		.33				DE 1
	16	1442	1458	NO FLARE PATROL															
	16	1725	1728	NO FLARE PATROL															
	16	1742	1746	NO FLARE PATROL															
	16	1748	1807	NO FLARE PATROL															
	16	1821	1839	NO FLARE PATROL															
	16	1841	1957	NO FLARE PATROL															
	16	1958	2008	NO FLARE PATROL															
	16	2005	2111	NO FLARE PATROL															
019 BOUL	16	2056	2110	2100	S20	W14	.397	12139	15.8	14	-N	1	V						1
	16	2155	2221	NO FLARE PATROL															
020 MANI	17	0013E	0024	0013	S05	E25	.427	12143	18.9	11D	--F	1		0013	.52	.56			2
021 MANI	17	0027E	0120	0033	N12	W66	.919	12136	12.1	53D	--N	1		0033	.31	.63			2
022 MANI	17	0033	0050	0035	S04	E25	.425	12143	18.9	17	--N	1		0035	.31	.34			2
023 TEHR	17	1214	1229	1218	S17	W31	.565	12139	15.2	15	--N	2	C		.45				F 2
	17	1332	1335	NO FLARE PATROL															
024 RAMY	17	1438	1446D	1445	S07	E22	.386	12143	19.3	8D	--F	2	C		.93				DE 1
	17	1446	1454	NO FLARE PATROL															
025 HUAN	17	1513	1527	1517	S21	E38	.670	12144	20.5	14	-N	1	C	1517	.72	.98			D 3
026 HUAN	17	1635	1638	1635	S21	E38	.670	12144	20.5	3	--F	1	C	1635	.21	.28			D 3
028 HUAN	17	1649	1657	1652	S21	E37	.659	12144	20.5	8	--F	1	C	1652	.62	.82			E 3
029 BOUL	17	2003	2033	2006	S07	E13	.246	12143	18.8	30	--N	2	V	2006	.80	.80			1
	17	2104	2121	NO FLARE PATROL															
	17	2135	2143	NO FLARE PATROL															
GRP47030	18	0041	0109	0050	S07	E11	.214	12143	18.9	28	-F				2.69				2 2 2 4
MITK	18	0040	0115	0055	S05	E12	.217	12143	18.9	35	1N		C	0055	4.54	4.80			EG
MANI	18	0041	0102	0045	S08	E10	.208	12143	18.8	21	-F	2		0045	.83	.85			
GRP47032	18	0452	0522	0503	S07	E07	.157	12143	18.7	30	-N				1.15				2 2 2 3
MANI	18	0447	0516	0503	S08	E08	.181	12143	18.8	29	-N	2		0503	.93	.94			
TEHR	18	0457	0528	0503	S06	E06	.133	12143	18.7	31	-N	2	C		1.37				U
GRP47033	18	0606	0623	0615	S21	W42	.713	12139	15.1	17	--N				.45				2 2 2 4
TEHR	18	0605	0623	0615	S21	W40	.691	12139	15.3	18	-N	3	C		.27				F
MANI	18	0606	0622	0615	S21	W44	.734	12139	15.0	16	-N	2		0615	.62	.92			
4 STATIONS REPORTING GROUP 47034. 0 STATIONS OBSERVING AND NOT REPORTING.																			
GRP47034	18	0658	0758	0710	S09	E08	.193	12143	18.9	60	1N				4.73				2 2 2 4
CRON	18	0652E	0747	0711	S08	E07	.168	12143	18.8	55D	-N	3	V	0711	1.60				
KODA	18	0704	0809	0709	S09	E08	.193	12143	18.9	65	2N		C	0709	7.86	7.90	1.60		CEH

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	DATE DEC	START	END	MAX. PHASE	APPROX. LAT.	APPROX. LONG.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY		MIN.		CONG.	TYPE	TIME UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hd	MAX. INT. %	
47034	18	0645	0754	0658	S07	E06	.144	12143	18.7		69	*-N				2.64				2 2 2 4
MANI	18	0645	0743	0654	S08	E07	.168	12143	18.8		58	1N	2		0654	3.89	3.15			
TEHR	18	0645	0805	0702	S06	E05	.120	12143	18.7		80	-N	3	C		2.19				F
038 HUAN	18	1708	1714	1713	S07	E27	.462	12144	20.7		6	--F	1	C	1713	.10	.12			D 2
039 RAMY	18	1804E	1808	1804U	S23	W49	.791	12139	15.1		4D	--F	4	V		.28				DE 2
040 HUAN	18	1927	1935	1932	S16	E24	.467	12144	20.6		8	--F	1	C	1932	.15	.17			D 2
GRP47041	18	2029	2117	2053	S07	E01	.102	12143	18.9		48	--F				.56				2 2 1 3
RAMY	18	2028E	2113	2054	S06	E00	.083	12143	18.9		45D	-N	3	V		.56				DE
RAMY	18	2028E	2113	2031	S06	E00	.083	12143	18.9		45D	-F	3	V		.46				DE
BOUL	18	2030	2120	2052	S07	E01	.102	12143	18.9		50	-F	2	V						
	18	2120	2140	NO FLARE PATROL																
042 BOUL	18	2150	2156	2150	S07	E24	.416	12144	20.7		6	--F	2	V						1
	18	2200	2202	NO FLARE PATROL																
043 VORO	19	0054	0129	0102	S07	W02	.104	12143	18.9		35	-B		C	0102	2.03	2.00		66	EJL 3
GRP47048	19	1333	1342	1335	S07	E16	.291	12144	20.8		9	--F				.48				2 2 2 4
HUAN	19	1333	1338	1335	S08	E16	.297	12144	20.8		5	-F	1	C	1335	.26	.27			D
CAPS	19	1334E	1345D		S05	E15	.266	12144	20.7		11D	-F	2	V	1335	.78	.78		(150)	C
GRP47050	19	1643	1702	1645	S07	W11	.213	12143	18.9		19	--F				.41				2 2 2 2
HUAN	19	1643	1705	1644	S07	W10	.198	12143	18.9		22	-F	1	P	1644	.36	.37			E
RAMY	19	1644E	1658	1645	S07	W12	.229	12143	18.8		14D	-F	4	V		.46				DE
051 RAMY	19	1656	1705		S09	E86	.997	12151	26.2		9	-N	3	C						DE 2
052 RAMY	19	1808	1841		N01	E86	.998	12151	26.2		33	--F	3	C						DE 2
053 RAMY	19	1848	1856	1850	N15	E17	.398	12145	21.1		8	--N	4	V		.21				DE 2
054 PALE	19	2025	2029	2027	S05	E11	.200	12144	20.7		4	--F	2	V		.21				1
055 PALE	19	2137	2148	2146	S07	W12	.229	12143	19.8		11	--F	2	V		.41				F 1
GRP47056	20	0227	0234	0229	N14	E17	.389	12145	21.4		7	--F				.69				2 2 2 5
PALE	20	0226	0234	0228	N14	E17	.389	12145	21.4		8	-F	1	C		.55				
MITK	20	0227	0233	0229	N14	E16	.378	12145	21.3		6	-N		C	0229	.83	.90			D
059 HUAN	20	1417	1421	1418	S07	E41	.659	12147	23.7		4	--F	1	C	1418	.31	.40			D 3
060 PALE	20	1937	1941	1938	N11	E41	.677	12149	23.9		4	--F	1	C		.27				3
061 PALE	20	2015	2021	2017	N11	E41	.677	12149	23.9		6	--F	1	C		.27				3
062 PALE	20	2212E	2219	2213U	N12	E48	.669	12149	23.9		7D	--F	2	V		.26				2
	20	2250	2256	NO FLARE PATROL																
	21	0331	0342	NO FLARE PATROL																
	21	0344	0352	NO FLARE PATROL																
	21	0353	0402	NO FLARE PATROL																
	21	0403	0412	NO FLARE PATROL																
	21	0415	0426	NO FLARE PATROL																
GRP47068	22	1612	1618	1614	N11	E32	.563	12149	24.1		6	--F				.62				2 2 2 2
RAMY	21	1607	1620	1609	N10	E31	.544	12149	24.0		13	-F	3	C		.46				DE
RAMY	21	1612E	1619	1613U	N11	E31	.549	12149	24.0		7D	-F	3	V		.56				DE
HUAN	21	1613E	1617	1614	N11	E33	.576	12149	24.2		4D	-F	1	C	1614	.67	.82			D
	21	1651	1702	NO FLARE PATROL																
GRP47069	21	1944	1959	1948	N12	E29	.528	12149	24.0		15	--F				.51				2 2 2 3
RAMY	21	1944	2001	1948	N12	E30	.541	12149	24.1		17	-F	2	C		.56				DE
PALE	21	1946E	1957	1948U	N12	E28	.515	12149	23.9		11D	-F	3	V		.46				F
GRP47076	22	1124E	1133	1125	S09	E49	.758	12151	26.2		9	-N				1.12				2 2 2 5
RAMY	22	1124E	1132	1125U	S09	E47	.735	12151	26.0		8D	-N	2	C		1.39				DE
UPIC	22	1124E	11330		S08	E50	.768	12151	26.2		9D	-N		P	1124	.85				E

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	DATE DEC	START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MONATH PLAGE REGION	CMP DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT. %	
078 RAMY	22	1436	1448	1440	S09	E30	.511	12150	24.9	12	--F	2	C		.37				DE 3
079 RAMY	22	1521	1545	1525	N10	E15	.326	12149	23.8	24	--F	2	C		.56				DE 2
	22	1704	1715	NO FLARE PATROL															
	22	1724	1725	NO FLARE PATROL															
080 BOUL	22	1846	1908	1847	N11	E15	.336	12149	23.9	14	--F	3	V	1847	.48	.42			2
GRP47081	22	2253E	2258	2254	N11	E14	.324	12149	24.0	5	--N				.41				2 2 2 3
MANI	22	2253E	2256	2253	N11	E13	.312	12149	23.9	3D	-N	1		2253	.52	.54			
CRON	22	2259E	23000	2255	N11	E14	.324	12149	24.0	5D	-N		V	2255	.38				
GRP47082	23	0040E	0108	0046	N11	E10	.280	12149	23.8	28	-N				1.28				2 2 2 5
VORO	23	0040E	0115		N11	E09	.270	12149	23.7	35D	-B		C	0042	1.94	2.00		62	EJ
MANI	23	0046E	0101	0046	N11	E10	.280	12149	23.8	15D	-F	2		0046	.62	.65			
GRP47085	23	0146	0201	0148	N13	E13	.337	12149	24.0	15	-N				1.19				4 4 4 5
MANI	23	0144E	0154	0148	N13	E12	.327	12149	24.0	10D	-N	2		0148	.83	.87			
PALE	23	0145	0152	0148	N12	E14	.336	12149	24.1	7	-F	2	C		.45				
VORO	23	0146	01510	0148	N14	E12	.340	12149	24.0	5D	-B		C	0151	1.11	1.16		62	DJ
KODA	23	0148	0217		N13	E13	.337	12149	24.0	29	-N		C	0148	2.38	2.40			E
086 MANI	23	0431E	0431	0431	N10	E10	.267	12149	23.9		--N	2		0431	.31	.32			2
GRP47087	23	0518	0556	0534	N10	E08	.247	12149	23.8	38	-N				1.55				2 1 1 3
MANI	23	0518	0556	0534	N10	E08	.247	12149	23.8	38	-N	2		0534	1.55	1.60			
SIBE	23	0521	0523D	0523	N09	E09	.244	12149	23.9	2D	2F		V						FJLUV
	23	0645	0655	NO FLARE PATROL															
GRP47090	23	1343	1349	1345	N10	E06	.230	12149	24.0	6	--F				.37				2 2 2 4
RAMY	23	1342	1350	1344	N11	E05	.239	12149	23.9	8	-N	4	V		.33				DE
HUAN	23	1344	1347	1345	N09	E06	.215	12149	24.0	3	-F	1	C	1345	.41	.42			E
092 HUAN	23	2013	2023	2020	N09	W07	.224	12149	23.3	10	--F	1	C	2020	.41	.42			D 3
093 PALE	23	2339	2340D	2340	N10	W05	.223	12149	23.6	1D	--F	2	C		.27				4
GRP47097	24	1543	1552	1545	S13	E15	.317	12151	25.8	9	--F				.31				2 2 2 3
RAMY	24	1542	1550	1545	S13	E15	.317	12151	25.8	8	-F	4	C		.46				DE
HUAN	24	1543	1553		S13	E14	.304	12151	25.7	10	-F	1	C	1545	.15	.16			D
098 HUAN	24	1613	1617	1614	N10	W10	.269	12149	23.9	4	--F	1	C	1614	.67	.70			D 2
099 BOUL	24	2028	2037	2029	N13	W15	.361	12149	23.7	9	--F	1	V						2
	24	2054	2136	NO FLARE PATROL															
GRP47100	24	2205	2225	2208	N12	W17	.374	12149	23.6	20	-N				.99				2 2 1 2
PALE	24	2205	22090	2208	N10	W18	.368	12149	23.6	4D	-N	4	C		.99				F
BOUL	24	2205	2225	2207U	N13	W16	.372	12149	23.7	20	-N	2	V						
GRP47101	25	0045	0111	0052	N11	W19	.391	12149	23.6	26	-B				1.70				2 2 2 5
VORO	25	0039	0118	0052	N11	W18	.378	12149	23.7	39	1B		C	0052	2.87	3.05		73	FJ
MANI	25	0050	0103	0052	N10	W20	.396	12149	23.5	13	-N	2		0052	.52	.56			
102 TACH	25	0601	0612	0605	N16	W51	.810	12145	21.4	11	-N		C	0605	.83	1.42		76	D 3
GRP47103	25	0755	0818	0810	N13	W23	.460	12149	23.6	23	--F				.87				2 2 1 3
ISTA	25	0755	0810		N12	W22	.439	12149	23.7	15	-F								
CATA	25	0800E	0825	0810	N13	W23	.460	12149	23.6	25D	-N	2		0810	.87	.98		(186)	
GRP47104	25	0901	0909	0905	N19	W58	.804	12145	21.6	8	--F				.58				2 2 1 2
CATA	25	0900	0910	0905	N19	W58	.804	12145	21.6	10	-N	3		0905	.58	.97		(155)	
ISTA	25	0902	0908		N18	W58	.800	12145	21.6	6	-F								ES
105 CATA	25	0955	1030	1010	N16	W90	1.000	12142	18.7	35	1F	3		1010	.58			(123)	2
106 CATA	25	1220	1225	1220	N19	W52	.822	12145	21.6	5	-B	3		1220	.58	1.01		(214)	2
107 RAMY	25	1255	1304D	1257	N11	W27	.498	12149	23.5	9D	--F	4	C		.37				DE 3
	25	2242	2305	NO FLARE PATROL															
108 MANI	25	2305E	2314	2305	N12	W37	.635	12149	23.2	9D	--N	1		2305	.41	.53			1
109 MANI	26	0033	0053	0038	N11	W35	.605	12149	23.4	20	--F	2		0038	.31	.39			2

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	DATE DEC	START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MEMATH PLAGE REGION	CMP DAY		MIN.		COND.	TYPE	TIME UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT. %	
GRP47110	26	0218	0245	0223	N13	W38	.652	12149	23.2		27	--F				.58				2 2 2 2
PALE	26	0218	0228	0222	N13	W37	.640	12149	23.3		10	-N	3	C		.63				F
MANI	26	0220E	0240	0224	N12	W38	.648	12149	23.2		20D	-F	2		0224	.52	.67			
PALE	26	0240	0250	0243	N13	W38	.652	12149	23.3		10	-F	3	C		.27				F
	26	0400	0401	NO FLARE PATROL																
	26	0431	0439	NO FLARE PATROL																
	26	0443	0604	NO FLARE PATROL																
GRP47111	26	1221E	1241	1226	N11	W41	.681	12149	23.4		20	-F				1.71				2 2 2 5
WEND	26	1221E	1237		N10	W40	.665	12149	23.5		16D	1N		V		3.09				
RAMY	26	1226E	1245	1226U	N12	W41	.684	12149	23.4		19D	-F	4	C		.33				DE
112 HUAN	26	1342	1349	1345	N15	W75	.971	12145	20.9		7	--F	1	C	1345	.21				D 3
GRP47113	26	1818	1828	1820	N13	W41	.688	12149	23.7		10	--F				.54				3 3 3 3
PALE	26	1816	1826	1819	N14	W40	.680	12149	23.8		10	-F	3	C		.37				F
RAMY	26	1818	1830	1820	N13	W42	.699	12149	23.6		12	-F	2	C		.21				DE
HUAN	26	1819	1827	1820	N12	W41	.684	12149	23.7		8	-F	1	C	1820	1.03	1.40			
GRP47114	26	2014	2021	2017	N12	W47	.753	12149	23.3		7	-N				.83				2 2 2 2
PALE	26	2010	2022	2016	N10	W48	.759	12149	23.2		12	-N	3	V		.83				F
PALE	26	2010	2022	2013	N10	W48	.759	12149	23.2		12	-F	3	V		.26				F
HUAN	26	2017	2019	2017	N13	W46	.745	12149	23.4		2	-N	1	C	2017	.83	1.23			D
GRP47115	27	0000	0013	0005	N13	W45	.734	12149	23.6		13	-B				1.79				2 2 2 3
VORO	27	0000	00110	0003	N11	W47	.750	12149	23.5		11D	1B		C	0003	2.77	4.10		83	EHJ
PALE	27	0006E	0013	0006U	N14	W43	.714	12149	23.8		7D	-N	3	C		.81				F
GRP47116	27	0044	0051	0045	N11	W48	.761	12149	23.4		7	-N				1.88				2 2 2 3
MITK	27	0044	0052	0045	N13	W48	.766	12149	23.4		8	-F		C	0045	.52	.80			D
VORO	27	0044	0050	0045	N09	W47	.745	12149	23.5		6	1B		C	0045	3.24	4.65		97	D
GRP47117	27	0119	0135	0122	N12	W47	.753	12149	23.5		16	-N				1.88				4 4 4 4
PALE	27	0117	0137	0124	N13	W47	.755	12149	23.5		20	-N	3	C		.64				F
VORO	27	0119	0138	0123	N10	W48	.758	12149	23.5		19	1B		C	0123	2.12	3.15		80	EJ
MITK	27	0120	0139	0121	N12	W47	.753	12149	23.5		19	-N		C	0121	.93	1.40			E
MANI	27	0120E	0124	0120	N11	W44	.716	12149	23.8		4D	-N	1		0120	.62	.89			
GRP47118	27	0301	0316	0303	N18	W41	.709	12149	24.1		15	--F				.45				2 2 2 4
PALE	27	0308	0316	0303	N18	W40	.698	12149	24.1		16	-F	3	C		.27				
MITK	27	0301	0316	0302	N17	W41	.704	12149	24.1		15	-F		C	0302	.62	.90			D
121 RAMY	27	1345E	1408	1347U	N10	W56	.839	12149	23.4		15D	--N	4	C		.37				DE 3
	27	1655	1729	NO FLARE PATROL																
	27	2124	2144	NO FLARE PATROL																
	27	2145	2201	NO FLARE PATROL																
122 RAMY	28	1158	1215	1200	S15	W87	.998	12146	22.8		17	--F	2	C						DE 3
GRP47123	28	1318	1340	1324	S15	W89	1.000	12146	21.9		22	-N				.85				2 2 1 2
RAMY	28	1318	1334	1322	S15	W88	.999	12146	22.0		16	-N	3	C						DE
UPIC	28	1320E	1346D	1325	S14	W90	1.000	12146	21.8		26D	-N		P	1325	.85				
	28	1438	1608	NO FLARE PATROL																
	28	1612	1633	NO FLARE PATROL																
124 VORO	28	2348E	0005D		S17	W21	.426	12153	27.4		17D	-N		P	2351	1.75	1.90		60	EH 3
125 VORO	29	0051	0105	0052	S17	W22	.438	12153	27.4		14	-B		C	0052	1.11	1.20		67	EH 3
GRP47126	29	0306	0323	0310	S17	W24	.464	12153	27.3		17	-B				.85				2 2 2 4
VORO	29	0306	0314	0308	S17	W23	.451	12153	27.4		8	-B		C	0308	1.29	1.41		66	EH
MANI	29	0312E	0332	0312	S16	W25	.478	12153	27.3		20D	-N	1		0312	.41	.47			
129 MEUD	29	1339	1358	1342	S12	E61	.875	12158	3.1		11	--F		C	1342	.41	.80			D 1
	29	1403	1418	NO FLARE PATROL																
	29	1443	1455	NO FLARE PATROL																
	29	1951	1954	NO FLARE PATROL																

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OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS					REMARKS
	DATE DEC	START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH HG	MAX. INT. %	
	29	1958	2017	NO FLARE PATROL															
	29	2054	2108	NO FLARE PATROL															
	29	2132	2150	NO FLARE PATROL															
	29	2203	2217	NO FLARE PATROL															
	29	2337	2341	NO FLARE PATROL															
130 HITK	30	0245	0303	0250	S16	W39	.651	12153	27.2	18	--F		C	0250	.52	.70			D 3
131 HITK	30	0319	0337	0322	S16	W39	.651	12153	27.2	18	--F		C	0322	.52	.70			D 3
132 ATHN	30	1438E	1440D	1438U	N08	E88	1.000	12160	6.2	20	-N	1	V						F 3
GRP47133	30	1859	1926	1907	N06	E80	.986	12160	5.8	27	--F				.37				2 2 2 2
PALE	30	1859	1926	1906	N05	E80	.986	12160	5.8	27	-F	2	C		.36				
PALE	30	1859	1926	1918	N05	E80	.986	12160	5.8	27	-F	2	C		.36				
RAMY	30	1907E	1922D	1908	N06	E79	.983	12160	5.7	15D	-F	3	C		.37				DE
GRP47134	31	0224	0243	0231	N07	E75	.968	12160	5.7	19	1N				1.06				7 6 6 7
CULG	31	0221	0337	0231	N07	E75	.968	12160	5.7	76	1N		C	0231	.67	1.60			
CRON	31	0222E	0235	0227	N06	E72	.953	12160	5.5	13D	-N	1	V	0227	.48				
MANI	31	0225E	0238	0232	N07	E74	.964	12160	5.7	13D	-N	2		0232	.62	1.44			
PALE	31	0226	0246D	0231	N07	E73	.959	12160	5.6	20D	-F	2	C		.55				F
VORO	31	0227	0244	0232	N11	E81	.990	12160	6.2	17	2F		C	0232	2.96	11.00		66	
HITK	31	0228E	0251D	0231	N06	E75	.968	12160	5.7	23D	1N		C	0231	1.13				E
KODA	31	0248	0245	0243	N09	E65	.912	12160	5.0	5	-N		V						
137 RAMY	31	1302	1311	1304	N08	E69	.938	12160	5.7	9	--F	2	C		.46				DE 3
138 RAMY	31	1810	1818	1812	N05	E73	.958	12160	6.2	8	--N	3	C		.19				DE 2
139 HUAN	31	1907	1913	1909	N06	E67	.924	12160	5.8	6	--F	1	C	1909					D 2

Note:
A line of explanation has been added before each flare event having more than one maxima. The total number of stations reporting some part of the event is given. The number of stations observing at the time of the principal maximum but not reporting the event is given in the second statement. Care should be exercised in utilizing the numbers in the remarks column. The first number is the number of stations reporting the individual maximum, and not the total number of stations reporting some part of the flare event. The last number is the number of stations reporting at the time of the individual maximum and not necessarily the total number of stations observing during the flare event. GRP numbers may appear several times in order to indicate secondary maxima. An asterisk beside an importance indicates a secondary maximum. The word "GRP" has also been omitted to aid in pointing to this condition.
When it is impossible to determine the time of Maximum Phase from the individual reports the time of Area Measurements is used. This time appears in parentheses. For Flares reported by only one station the last 3 digits of the group number appear to the left of the station code.

In the importance column "--" signifies the subflare has been confirmed by the NOAA grouping program but is not included in the I.A.U. Quarterly Bulletin on Solar Activity. These subflares are also not included in the Flare Index below.

DAILY FLARE INDICES

Date	Flare Index	HR OBS	Date	Flare Index	HR OBS	Date	Flare Index	HR OBS
721201	0.00	18.6	721212	48.36	23.7	721222	6.63	23.8
721202	10.20	18.7	721213	0.00	23.9	721223	28.80	23.8
721203	0.00	14.9	721214	37.62	23.5	721224	5.25	23.3
721204	0.00	17.1	721215	66.14	24.0	721225	22.44	23.6
721206	0.00	23.6	721216	83.82	18.9	721226	19.91	22.5
721207	0.00	22.3	721217	2.74	23.4	721227	43.19	22.8
721208	33.22	22.8	721218	163.25	23.8	721228	21.10	22.1
721209	0.00	23.6	721219	22.59	24.0	721229	10.38	22.6
721210	27.36	21.3	721220	0.00	23.9	721230	0.84	24.0
721211	2.74	24.0	721221	0.00	23.0	721231	5.93	24.0

When no Flare Index is given, it is 0 for that day.

SOLAR FLARES
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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM-POR-TANCE	OBS.		MEASUREMENTS					REMARKS	
	DATE DEC	START	END	MAX. PHASE	APPROX. LAT.	APPROX. WEB DIST.	CENTRAL DISTANCE	HEMATH PLAGE REGION	CMP DAY	MIN.		COND.	TYPE	TIME — UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Mo	MAX. INT. %		
930 MANI	01	0231	0241	0233	S17	W26	.519	12131	29.2	10	-F	2		0233	.41	.48				6
931 MANI	01	0451E	0451	0451	S14	W09	.299	12125	30.5		-N	2		0451	.52	.54				5
932 RAMY	01	1700E	1708	1701U	N20	E20	.459	12127	3.2	8D	-F	3	V		.33				DE	3
935 CATA	04	1120	1125	1120	S12	W85	.997	12126	28.1	5	-F	3		1120	.29			(135)		4
936 MANI	05	0602E	0606	0602	S14	W19	.402	12132	3.8	4D	-N	1		0602	.72	.78				4
937 MONT	05	1150	1210	1201	S17	W27	.527	12132	3.5	12	-N		C	1201	.21					4
940 VORO	06	0028	0056	0034	N14	E84	.995	12136	12.3	28	-N		C	0034	.37	1.77		55	D	5
942 RAMY	06	1629	1658	1633U	N11	E67	.923	12136	11.7	29	-F	3	V		.37				DE	3
943 RAMY	06	1701	1715	1704	N03	W08	.147	12135	6.1	14	-F	3	C		.19				DE	4
945 MANI	07	0652	0705	0658	S11	E60	.872	12137	11.8	13	-F	2		0658	.62	1.13				3
947 ATHN	07	0815E	0822D	0815U	N10	E59	.862	12136	11.8	7D	-N	1	V		.58				DE	8
948 ARCE	07	1135E	1284D		N13	E64	.904	12136	12.3	29D	-F		C	1145	.25	.60				8
949 HUAN	07	1233	1243D	1236	S12	E64	.904	12137	12.3	10D	-F	1	C	1236	.46	1.02			D	7
954 MITK	09	0838E	01260		N10	E37	.618	12136	11.8	48D	-N		C	0838	1.44	1.88			D	5
962 ATHN	11	0855E	0858D	0857	N11	E03	.204	12136	11.8	3D	-N	2	V		.33				DE	4
968 MCHA	12	1431	1432D		N10	W01	.181	12136	11.5	1D	-N		P	1431	.62	.50			E	4
969 MCHA	11	1451E	1503D		S19	E52	.812	12139	15.5	12D	-F		P	1451	.36	.70			E	4
973 PALE	11	1849	1859	1854	N11	E02	.208	12136	11.9	10	-F	3	V		.36				F	4
974 PALE	11	1939E	1946	1941U	N18	E56	.848	12141	16.0	7D	-F	4	V		.31				F	5
975 PALE	11	1943E	1952	1944U	S19	E47	.763	12139	15.3	9D	-F	4	V		.57				DE	5
977 PALE	11	2245E	2258	2247U	S18	E08	.216	12137	12.5	5D	-F	3	V		.26				F	3
979 VORO	12	0305	0313	0306	S17	E47	.756	12139	15.7	8	-B		C	0306	.93	1.33		72	DJ	5
980 VORO	12	0338	0353	0341	S17	E46	.745	12139	15.6	15	-B		C	0341	.93	1.31		77	DJ	4
981 ATHN	12	0712E	0716D	0714U	S19	E42	.709	12139	15.5	4D	-N	1	C		1.32				F	5
982 ISTA	12	0855E	09250		S19	E42	.709	12139	15.5	30D	-N								B	8
983 MONT	12	0934	0945	0939	N13	W03	.239	12136	12.2	11	-N		C	0939	.21					8
984 RAMY	12	1128E	1148		S18	E38	.659	12139	15.3	12D	-F	2	V		.33				DE	5
985 WEND	12	1219	1247		S18	E41	.694	12139	15.6	28	1F		V		4.13					4
989 VORO	13	0006	0050		S18	E33	.599	12139	15.5	44	1N		P	0016	1.85	2.26		68	EJ	3
991 SIBE	13	0415E	0434	0415	S28	E34	.622	12139	15.7	19D	1F		V						EJTV	3
992 SIBE	13	0445	0553	0450	S19	E32	.593	12139	15.6	68	2F		V						FJLN	4
993 ATHN	13	0806	0826	0808	S09	E26	.457	12138	15.3	20	-F	2	V		.33				DE	4
999 PALE	13	2341	2349	2344	S18	E24	.489	12139	15.8	8	-F	3	V		.26					4
000 ISTA	14	0739	0742		S19	E20	.451	12139	15.8	3	-F								D	4
001 ISTA	14	0806	0815		N10	W42	.684	12136	11.2	9	-F									4
002 ISTA	14	0824	0826		S19	E15	.398	12139	15.5	2	-F								D	5
003 MONT	14	1032	1042D	1034	N11	W44	.711	12136	11.1	10D	-N		C	1034	.21					5
004 CAPS	14	1043E	1057D		N11	W43	.699	12136	11.2	14D	-N	1	V	1043	.68	.88			C	5
005 MONT	14	1155	1208	1159	S03	E68	.866	12143	19.0	13	-N		C	1159	.21					5
012 MANI	16	0239	0246	0242	S19	W12	.366	12139	15.2	7	-F	1		0242	.21	.22				4

SOLAR FLARES
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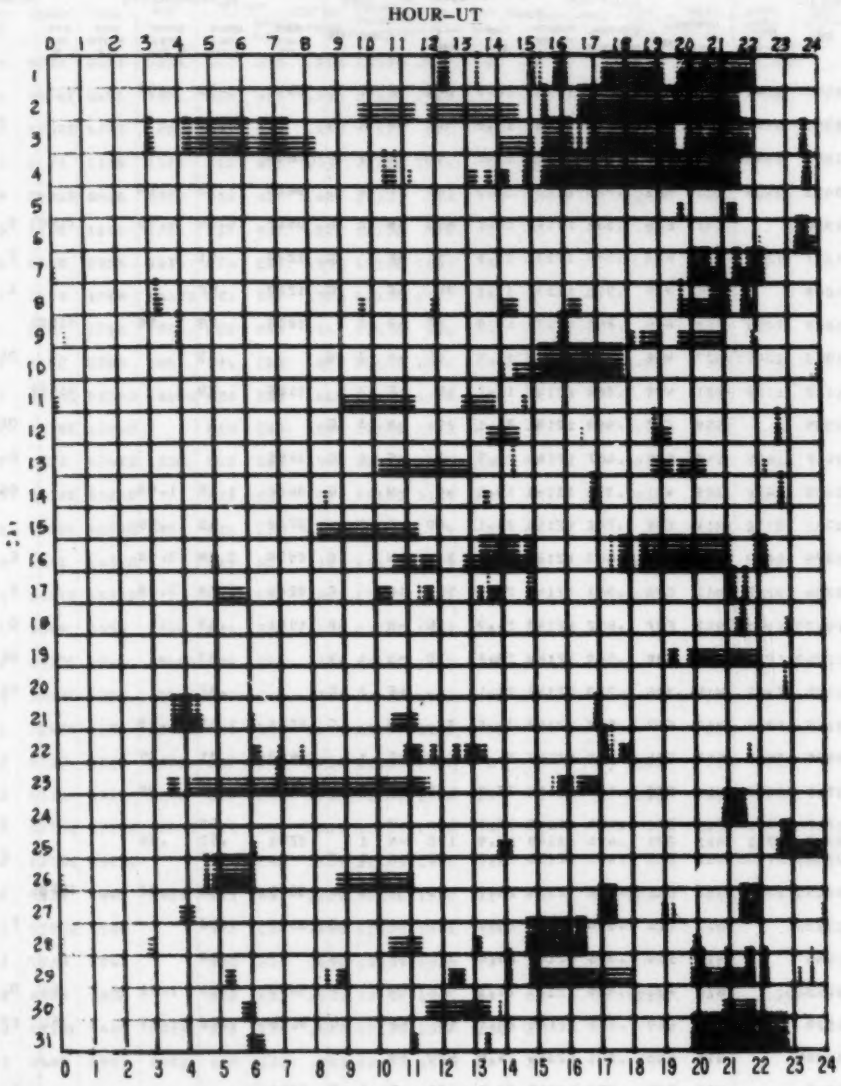
OBSERVATORY	DATE DEC	OBSERVED UT START	END	MAX. PHASE	LOCATION APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	NOAA PLAGE REGION	CMP DAY	DURATION MIN.	IMPORTANCE	OBS. COND.	OBS. TYPE	MEASUREMENTS TIME UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Deg.	MAX. INT. %	REMARKS
015 MANI	16	0548E	0602	0541	S08	E36	.595	12143	18.9	22D	-F	1		0541	.31	.38			3
017 TEHR	16	0950E	0958	0951U	S05	E35	.576	12143	19.0	8D	-F	2	V		.58				F 4
027 BOUL	17	1646E	1655	1646U	N11	W74	.964	12136	12.1	9D	-F	1	V	1646					3
031 MANI	18	0423	0433	0425	S21	W43	.723	12139	15.0	10	-N	2		0425	1.13	1.64			4
035 CAPS	18	0815E	0900D		S07	E05	.132	12143	18.7	45D	1N	2	S	0817	4.00	4.00		(170)	B 6
036 MEUD	18	1222	1227	1223	S20	W80	.985	12137	12.5	5	-F		C	1223	.41				E 6
037 MEUD	18	1228	1248		S21	W85	.996	12137	12.1	20	-F		C	1229	.52				A 5
044 CATA	19	1005E	1010	1005	S18	W59	.868	12139	15.0	5D	-N	3		1005	.29	.58		(162)	6
045 TEHR	19	1045E	1053	1045U	S17	W56	.841	12139	15.2	8D	-N	2	V		.33				DE 5
046 CATA	19	1105	1120	1105	S21	W90	1.000	12137	12.7	15	-F	3		1105	.29			(112)	5
047 RAMY	19	1326	1355		S09	E87	.998	12151	26.1	29	-N	3	C						DE 4
049 HUAN	19	1454	1457	1455	S17	E25	.487	12146	21.5	3	-F	1	C	1455					D 5
057 MITK	20	0409	0453	0420	S09	W21	.378	12143	18.6	44	-N		C	0420	1.75	1.90			DG 5
058 MANI	20	0726E	0732	0730	N11	E50	.780	12149	24.1	6D	-F	2		0730	.41	.66			3
063 MITK	21	0036	0059	0039	N11	E39	.653	12149	24.0	23	1N		C	0039	2.89	3.90			E 5
064 MITK	21	0228	0324	0246	N11	E38	.641	12149	24.0	56	1N		C	0246	2.78	3.80			E 5
065 UPIC	21	1039E	1047D	1041	N12	E37	.632	12149	24.2	8D	-N		P	1041	.63				D 4
066 ATHN	21	1227E	1234D	1227U	N15	E30	.560	12149	23.8	7D	-N	1	V		.33				DE 5
067 RAMY	21	1418	1425	1419	N15	W06	.383	12145	21.1	7	-F	3	C		.37				DE 5
070 MITK	22	0003	0115	0021	N12	E27	.582	12149	24.0	72	-N		C	0021	1.65	1.90			6
071 MANI	22	0602E	0620	0602	N13	E24	.470	12149	24.1	18D	-F	1		0602	.31	.35			3
072 MANI	22	0630E	0715	0630	N11	E22	.428	12149	23.9	45D	-N	1		0630	.83	.90			3
GRP47073	22	0730	0747	0732	N11	E21	.414	12149	23.9	17	-N				.68				2 2 2 5
MANI	22	0730E	0747	0731	N11	E21	.414	12149	23.9	17D	-N	1		0731	.52	.56			
ATHN	22	0733E	0736D	0733U	N11	E20	.401	12149	23.8	3D	-N	1	V		.83				F
074 CATA	22	0810	0815D	0810	N12	E22	.436	12149	24.0	5D	-N	2		0810	.29	.32		(178)	7
075 UPIC	22	1010E	1018D		N11	E18	.374	12149	23.8		-F		P	1010	1.95				E 6
077 WEND	22	1409	1446		N12	E14	.335	12149	23.6	37	1F		V		4.13				3
083 VORO	23	0052	0053D		N14	W23	.466	12145	21.3	1D	-B		P	0053	1.20	1.31		61	DJ 5
084 VORO	23	0121	0139	0126	N11	E09	.270	12149	23.7	18	-B		C	0126	1.20	1.23		61	EH 4
088 ISTA	23	0845	0935D		N11	E08	.261	12149	24.0	50D	-N								4
089 HUAN	23	1137E	1217		N10	E06	.230	12149	23.9	40D	-F	1	P	1146					E 5
091 RAMY	23	1444E	1454	1446	N11	E01	.224	12149	23.7	10D	-F	4	V		.52				DE 3
094 MANI	24	0439E	0446	0439	N09	W07	.226	12149	23.7	7D	-F	2		0439	.31	.32			3
095 TEHR	24	0714E	0718D	0715U	N10	W06	.232	12149	23.9	4D	-N	2	V		.66				DE S 3
096 RAMY	24	1424	1434	1432	N12	W13	.326	12149	23.6	10	-F	4	C		.46				DE 6
119 VORO	27	0317	0322	0318	N09	W50	.778	12149	23.4	5	-B		C	0318	.93	1.35		65	D 4
120 MANI	27	0825	0843	0838	N11	W58	.782	12149	23.6	18	-N	2		0838	.21	.33			6
127 MANI	29	0404E	0418	0407	S16	W25	.470	12153	27.3	14D	-N	1		0407	.41	.47			4
128 MANI	29	0627E	0639	0627	S16	W26	.483	12153	27.3	12D	-F	1		0627	.31	.35			5
135 VORO	31	0256	0309D	0300	S11	E42	.675	12166	3.3	13D	-B		C	0300	1.47	1.98		67	EGJ 4
136 CRON	31	0430E	0438	0432	N06	E69	.936	12168	5.4	8D	-N	2	V	0432	.35				3

INTERVALS OF NO FLARE PATROL OBSERVATION

FOR PRECEDING SOLAR FLARE TABLE

DECEMBER 1972



Observatories included in total patrol:

Abastumani	Capri-S (Sweden)	Istanboul	McMath-Hulbert	Ramey
Arcetri	Carnarvon	Kharkov	Meudon	Siberie
Athenes	Catania	Kiev	Mitaka	Tachkent
Bucharest	Culgoora	Kodaikanal	Monte Mario	Tehran
Boulder	Herstmonceux	Locarno	Ondrejov	Upice
Capri-F (German)	Huancayo	Manila	Palehua	Voroshilov
				Wendelstein

Times of no flare patrol are shown by the shaded area for each day divided into times of no cinematographic patrol (bottom half of day) and times of neither visual nor cinematographic patrol (top half of day).

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

DECEMBER 1972

DEC 1972	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	REMARKS
1	2695	CANR	3	1720.5	1722.5	3	4.0	1.0		
	1420	CANR	3	1720	1721.5	2	3.0	1.0		
2	208	VORO	6	0027.8	0028.5	1	41.0	18.0		
	208	VORO	6	0236.5	0239.2	6.5	57.0	16.0		
5	930	BORD	5	0816	0816.9	1	29.0	1.0		
	4995	BOUL	3	1921.5	1922.5	2.5	9.0	3.0		
6	930	BORD	45	0833	0833.5	1	8.0	2.0		
	930	BORD	45	1106	1107.6	2	11.0	2.0		
	4995	CANR	3	1724	1726.5	3.5	10.0	3.0		
	2695	CANR	3	1724	1726.5	3.5	5.0	2.0		
7	204	KIEV	42	1035		180 D	13.0	6.0		
	2695	CANR	45	1701	1705	4.5	4.0	1.0		
	1420	CANR	45	1702	1703.5	5	2.0	1.0		
8	208	VORO	24	0235	0300	25	20.0	12.0		
	2695	CRON	45	0239.5	0243	8.5	5.0	1.0		
	2695	CRON	45	0239.5	0246	8.5	5.0	1.0		
	3750	TYKW	20	0241	0244	50	4.0	1.0		
	2000	TYKW	20	0242	0244	12	2.0	1.0		
	1420	CRON	45	0242.5	0244	10.5	5.0	1.0		
	9400	TYKW	20	0245	0250	15	3.0	1.0		
	200	GORK	44	0611 E		319		5.0		
	221	ABST	41	0700	0754	240	15.0			
	210	IZMI	44	0700		300	60.0			
	204	KIEV	44	0700 E	0810	380 D	50.0	7.0		
	210	IZMI	6	1035	1035.5	.7	170.0	130.0		
	410	SGMR	44	1206 E	1352.7	539 D	27.3			
	245	SGMR	44	1206 E	1852.3	539 D	97.3			
	245	BOUL	42	1450	1459	20			1	
	2800	OTTA	20	1550	1830	260	3.2	1.6		
	245	BOUL	41	1625	1627	4			1	
	245	BOUL	42	1758	1854	223			1	
	2695	PENT	24	2040		40	2.0			
	245	BOUL	42	2205	2229	69 D			1	
	1420	BOUL	45	2243.5	2246	6.5	9.0	2.0		
	2695	BOUL	45	2246	2247	4.5	16.0	5.0		
	2695	BOUL	45	2253.5	2302.5	19 D	156.0	47.0		
	4995	CRON	45	2254.5	2301	63.5	284.0	98.0		
	8800	MANI	4	2255.7	2259.2	41.3	330.0	89.0		
	4995	BOUL	45	2255	2302	16 D	325.0	103.0		
	4995	MANI	4	2255.1	2301.6	51.9	310.0	77.0		
	2695	CRON	45	2255	2302.5	25.5	134.0	39.0		
	2695	MANI	46	2255.6	2302.8	26.1	169.0	40.2		
	1420	BOUL	3	2255.5	2303.5	12 D	112.0	33 .0		
	606	MANI	4	2255.2	2300.8	32.3	465.0	85.0		
	9400	TYKW	45	2256	2301	24	350.0	100.0		
	3750	TYKW	45	2256	2301.1	24	235.0	65.0		
	2000	TYKW	45	2256	2302.7	24	130.0	40.0		
	1420	CRON	45	2256	2301	28	84.0	21.0		
	1420	CRON	45	2256	2302.5	28	84.0	21.0		
	1415	MANI	4	2256.6	2300.2	23.7	96.0	42.0		
	1000	TYKW	45	2257	2300.1	25	135.0	40.0		
	500	HIRA	45	2257		41		30.0		
	500	HIRA		2257	2300.4		200.0			
	500	HIRA		2257	2315.3		80.0			
	200	HIRA	45	2258.5		70		120.0		
	200	HIRA		2258.5	2259.5		1500.0			
	200	HIRA		2258.5	2306.5		300.0			
	200	HIRA		2258.5	2316		440.0			
	200	HIRA		2258.5	2340		240.0			
	200	HIRA		2258.5	2347		260.0			
	100	HIRA	45	2259	2301.2	5	260.0	120.0		
	208	VORO	44	2300	2306	65	364.0	126.0		
	100	HIRA	27	2305	2315	71	180.0	60.0		
	9400	TYKW	29	2320		150	40.0	13.0		
	3750	TYKW	29	2320		150	15.0	5.0		
	2000	TYKW	29	2320		150	6.0	3.0		
	1000	TYKW	29	2322		140	9.0	4.0		
9	500	HIRA	45	0034.8	0035	1	50.0	20.0		
	9400	TYKW	20	0310	0350	90	11.0	6.0		
	3750	TYKW	20	0315	0350	90	4.0	2.0		
	200	GORK	44	0630 E		294 D		5.0		
	221	ABST	41	0700	0844.5	240	4.0			
	204	KIEV	42	0700 E		360	12.0	5.0		
	245	SGMR	44	1207 E	1830.5	538 D	31.8			
	9100	GORK	3	0826	0826.2	1.1	28.0	14.0		
	2950	GORK	1	0826.1	0826.3	.6	11.0	5.5		
	950	GORK	1	0826	0826.2	1.4	5.0	2.5		
	650	GORK	1	0826.5	0826.8	1.1	3.6	1.8		
	2800	OTTA	21	1405	1815	310	2.8	24.0		
	245	BOUL	41	1410	1412	5			1	
	2700	PENN	45	1556.8	1605.2	21.6	160.0			
	960	PENN	45	1556.2	1605.4	20.6	50.0			
	15400	SGMR	22	1557.9	1605.1	41.1	31.9	8.0		
	4995	CANR	45	1559	1605	70.5	11.0	74.0		

SOLAR RADIO EMISSION
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DECEMBER 1972

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9	2695 CANR	45	1559	1605.5	92	89.0	9.0		
	1420 CANR	45	1559.5	1606	32.5	53.0	14.0		
	1420 BOUL	45	1559.5	1606	24	62.0	16.0		
	245 SGMR	6	1559.2	1608.1	50.4	82.7	20.7		
	10700 PENN	3	1600.6	1605.4	15	35.0			
	8800 SGMR	4	1600.5	1605.4	9.5	53.6	13.4		
	4995 BOUL	45	1600	1605.5	54	86.0	13.0		
	4995 SGMR	46	1600.5	1602	15.8	78.2	27.6		
	4995 SGMR	46		1605.2		110.4			
	2800 OTTA	46	1600.5	1605.2	19	100.0	27.3		
	2800 OTTA	46	1600.5	1602.5	3	43.5			
	2800 OTTA	46	1603.5	1605.2	3.2	100.0			
	2800 OTTA	46	1606.7	1607	12.8	67.6			
	18 BOUL	6	1606	1609	4			1	
	2695 BOUL	45	1600.5	1606	94.5	93.0	20.0		
	2695 SGMR	46	1600.9	1602.5	16.5	37.8	22.0		
	2695 SGMR	46		1605.3		87.8			
	1415 SGMR	46	1600.5	1602.4	16.5	50.3	15.7		
	1415 SGMR	46		1605.7		62.9			
	930 BORD		1600						
	606 SGMR	46	1600.8	1602	19.8	383.0	96.0		
	606 SGMR	46		1602.3		115.0			
	410 SGMR	6	1600.5	1607.1	35.5	61.6	15.4		
	9400 HUAN	3	1601.4	1605.3	6.7	56.6	25.7		
	7000 SAOP	45	1601.2	1605.3	7	68.3			
	7000 SAOP	3	1601.2	1602.7	2.7	28.8	16.6		
	7000 SAOP	4	1603.9	1605.3	4.3	68.3	64.1		
	18 MCMA	6	1603	1603.5	1			1	
	9400 HUAN	29	1608.1	1608.1	86	24.5	9.8		
	7000 SAOP	29	1608.2		8				
	8800 SGMR	29	1610	1610	30.5	20.3	10.1		
	10700 PENN	29	1615.6	1615.6	40.7	10.4	5.2		
	4995 SGMR	29	1616.3	1616.3	22.7	18.4	9.2		
	960 PENN	29	1616.8	1616.8	42.5	3.5	1.8		
	2695 SGMR	29	1617.4	1617.4	28	10.8	5.4		
	1415 SGMR	29	1617	1617	34.3	5.3	2.6		
	2700 PENN	29	1618.4	1618.4	38.9	15.5	7.7		
	2800 OTTA	29	1619.5		90	8.0	4.0		
	10700 PENN	1	1823	1823.8	3.4	3.9	2.8		
	2800 OTTA	20	1920	2025	150	3.8	3.0		
10	208 VORO	24	0024	0107	156	32.8	24.0		
	4995 CRON	45	0031.5	0053.5	78	35.0	8.0		
	9400 TYKW	45	0032	0053	130	20.0	9.0		
	3750 TYKW	45	0032	0053.4	28	37.0	17.0		
	2695 CRON	45	0032.5	0052	75.5	29.0	7.0		
	1420 CRON	40	0032.5	0038.5	110	52.0	8.0		
	8800 MANI	22	0033.2	0043.8	14.1D	16.2	2.0D		RFI
	4995 MANI	22	0033.2	0052.6	25	34.3	5.1		
	2695 MANI	22	0033.1U	0052.8	25.4U	33.5	7.4U		RFI
	2000 TYKW	45	0033	0041.2	41	45.0	11.0		
	1415 MANI	40	0033.1	0038.3	40.3	53.0	1.0		
	1000 TYKW	45	0033	0041	70	185.0	8.0		
	606 MANI	40	0033.5	0041.2	101.3	109.0	11.8		
	500 HIRA	45	0033.8		1.5		15.0		
	500 HIRA		0033.8	0034		50.0			
	500 HIRA		0033.8	0034.9		40.0			
	200 HIRA	45	0034.5	0035	1	70.0	40.0		
	100 HIRA	45	0034.5	0035.2	1	170.0	70.0		
	500 HIRA	45	0037.5	0041.5	9	50.0	10.0		
	100 HIRA	27	0040	0157	265	600.0	90.0		
	200 HIRA	27	0042	0112	70	30.0	15.0		
	500 HIRA	29	0046.5	0112	6	10.0	5.0		
	3750 TYKW	29	0100		110	15.0	8.0		
	2000 TYKW	29	0114		85	7.0	3.0		
	200 GORK	44	0615 E		105		5.0		
	2695 CRON	3	0622	0625	5.5	5.0	2.0		
	221 ABST	41	0700	0717.5	155	6.0			
	245 SGMR	44	1208 E	1739	538 D	17.8			
	4995 CANR	3	1323	1324	2	9.0	3.0		
	2800 OTTA	21	1415	1820	335	4.8	2.4		
	2800 OTTA	1	1505.5	1506	1	2.0	1.0		
	2700 PENN	20	1553.1	1755.4	289	11.1	5.5		
	2800 OTTA	1	1643	1644	2	1.0	5.0		
	960 PENN	24	1729.5	2030		3.2			
	9400 HUAN	1	1754.7	1754.9	3.4	9.3	4.4		
	4995 BOUL	8	1754.5	1755	1.5	14.0	4.0		
	2800 OTTA	1	1754.5	1755	2	1.4	0.7		
	2695 BOUL	3	1755	1755.5	1	3.0	1.0		
	2800 OTTA	1	1845.5	1846.3	5	1.0	0.5		
	2800 OTTA	1	1906.5	1907.1	2	.8	0.4		
11	8800 ATHN	2	0635.6	0636.1	3 U	8.5	2.8		
	2695 ATHN	2	0635.5	0636.8	3 U	4.9	2.4		
	1415 ATHN	2	0635.7	0636.8	3 U	2.1	.8		
	9500 BERL	4	0800.5	0801.7	4.1	36.0	9.1		
	3000 BERL	4	0800.5	0802					
	1500 BERL	4	0800.5	0802	4	9.8	3.5		
	8800 ATHN	4	0857	0857.6	2.2	12.7	4.2		
	2695 ATHN	1	0857.1	0857.6	1	4.9	1.8		

SOLAR RADIO EMISSION
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DECEMBER 1972

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	1415	ATHN	2	0857	0857.6	1.9	1.7	.4		
	2800	OTTA	21	1550	1740.	335	4.2	2.1		
	2700	PENN	20	1705.8	1723.9	122	6.9	2.5		
	2800	OTTA	20	1722	1724	11	2.4	1.2		
	4995	CANR	3	1737	1738.5	2	12.0	5.0		
	2695	CANR	3	1737.5	1739	2.5	9.0	3.0		
	1420	CANR	3	1740	1742	2	4.0	2.0		
	208	VORO	42	2313	2315	8	11.4	10.0		
12	3750	TYKW	20	0140	0150	80	4.0	2.0		
	2000	TYKW	20	0140	0146	80	2.0	1.0		
	100	HIRA	5	0312.1	0312.2	.5	60.0	30.0		
	100	HIRA	45	0358	0358.3	1	80.0	30.0		
	3750	TYKW	20	0420	0450	60	2.0	1.0		
	100	HIRA	45	0456	0457.3	1.8	70.0	15.0		
	9750	IRKU	1	0708.6	0708.8	5	24.5			
	8800	ATHN	3	0708	0708.8	1.4	18.1	5.6		
	8800	MANI	4	0708.5	0708.9	1.8	29.3	6.3		
	4995	MANI	2	0708.3	0708.9	2	6.2	1.5		
	210	IZMI	41	1007.9	1008	.6	91.0			
	4995	CANR	3	1303.5	1304.5	1.5	6.0	2.0		
	15400	SGMR	3	1327.4	1327.8	2.8	11.6	4.4		
	8800	ATHN	1	1327.6	1327.8	.9	8.0	4.0		
	8800	SGMR	3	1327.6	1327.9	3.3	10.1	4.0		
	4995	SGMR	1	1327.6	1327.8	2.5	4.9	2.4		
	2800	OTTA	20	1400	1503	155	5.0	2.8		
	4995	SGMR	1	1653.9	1654.2	1	5.9	2.4		
	8800	SGMR	3	1654	1654.3	1.6	10.1	4.1		
	2695	CANR	3	1656.5	1657.5	1.5	3.0	1.0		
	4995	CANR	3	1714	1716	4.5	9.0	3.0		
	2695	CANR	3	1714.5	1716.5	4	6.0	2.0		
	1420	CANR	3	1715	1717	4	3.0	1.0		
	4995	CANR	3	1727	1729	3.5	8.0	3.0		
	2695	CANR	3	1727.5	1729	5	6.0	2.0		
	1420	CANR	3	1727.5	1730	5.5	4.0	2.0		
	2800	OTTA	21	1728	1852	162	3.0	1.8		
	4995	CANR	3	1737.5	1738	2.5	7.0	3.0		
	2695	CANR	3	1737.5	1738.5	2.5	6.0	2.0		
	1420	CANR	3	1738	1739	2.5	2.0	1.0		
	4995	CANR	3	1747	1748	1.5	9.0	3.0		
	2695	CANR	3	1747.5	1748.5	2.5	7.0	3.0		
	1420	CANR	3	1747.5	1749.5	3	4.0	2.0		
	2800	OTTA	22	1807	1812	10	2.0	1.2		
	2695	PENT	20	2020	2055	80	1.6	0.8		
13	2695	CRON	3	0328.5	0330	5	7.0	3.0		
	3750	TYKW	1	0329	0330.5	5	7.0	3.0		
	2000	TYKW	1	0329	0330.7	5	5.0	2.0		
	1420	CRON	3	0329	0330	4.5	4.0	1.0		
	100	HIRA	45	0329.5	0332	3	150.0	60.0		
	1000	TYKW	1	0330	0330.7	2	2.0	1.0		
	210	IZMI	6	0908.6	0908.8	.5	67.0	30.0		
	113	POTS	45	1022.2	1022.2	1	150.0	7.0		
	2695	CANR	3	1027.5	1029	2.5	3.0	1.0		
	221	ABST	3	1044.2	1045	1	10.0	7.0		
	113	POTS	45	1341.1	1341.5	.7	200.0	5.0		
	18	MCMA	6	1352	1353	2			1	
	2800	OTTA	21	1600	1720	240	10.0	4.9		
	2800	OTTA	45	1642	1647	8	32.0	11.0		
	2695	BOUL	45	1642	1647.5	7	9.0	3.0		
	4995	CANR	45	1644	1646.5	4	6.0	2.0		
	2695	CANR	3	1646.5	1647	1.5	7.0	3.0		
	1420	BOUL	3	1646.5	1647	2	2.0	1.0		
14	930	BORD	45	1025	1025.9	1	8.0	2.0		
	950	GORK	40	1031.5	1033.5	3.2	1.6			
	9500	BERL	4	1032	1033.8	5.7	11.0	3.0		
	4995	CANR	8	1032.5	1033.5	3.5	29.0	11.0		
	4995	CRON	8	1032.5	1033.5	2	28.0	8.0		
	3000	BERL	4	1032	1036	4	23.0U	5.7		
	2695	CRON	8	1032.5	1033.5	2	21.0	7.0		
	1500	BERL	2	1032.5	1034	5	4.7	1.2		
	1420	CRON	8	1032.5	1035	3.5	6.0	2.0		
	9285	ARCE	3	1033.8	1034.6	2.5				
	9100	GORK	1	1033.7	1034.9	2.6	13.6	6.8		
	4995	ATHN	3	1033.7	1034.3	2.9	27.3	6.3		
	2950	GORK	3	1033.3	1034.2	2.4	24.0	12.0		
	2830	ARCE	3	1033.4	1034.3	3.8				
	2695	ATHN	3	1033.4	1034.3	3.5	21.0	5.6		
	2695	CANR	8	1033.5	1034	3.5	24.0	10.0		
	1420	CANR	8	1033.5	1034.5	1.5	4.0	2.0		
	1415	ATHN	2	1033.7	1034.5	3	3.9	1.3		
	650	GORK	1	1033.8	1034.2	1.8	1.7	0.8		
	8800	ATHN	1	1034	1034.3	3.8	9.9	2.8		
	221	ABST	1	1035	1035.2	.5	8.0			
	9285	ARCE	29	1036.3		18				
	113	POTS	5	1331.3	1331.3	.1	200.0	70.0		
	7000	SAOP	22	1335.8		38.2	16.6			
	7000	SAOP	32	1508.7		6.3	-9.1			
	7000	SAOP	22	1515.1		15.3	12.8			

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

DECEMBER 1972

DEC 1972	FREQUENCY STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} MEAN	INT	REMARKS
	2800 OTTA	21	1515		160	3.0	1.8		
	2700 PENN	20	1517.7	1519.1	41.7	10.4	2.1		
	4995 CANR	3	1518.5	1519	1	7.0	3.0		
	2800 OTTA	1	1518	1519.2	6	6.8	2.2		
	2695 CANR	21	1518.5	1519	4	5.0	2.0		
	7000 SAOP	21	1530.4	1532.2	5.5U	16.6			
	7000 SAOP	3	1530.4	1532.2	3.3	12.8	5.5		
	4995 CANR	3	1735.5	1736	2	7.0	3.0		
	2695 CANR	45	1735	1736	2.5	6.0	2.0		
	1420 CANR	45	1736	1737	2	3.0	1.0		
	2700 PENN	1	1909.6	1910.2	2.5	2.7	0.8		
	2800 OTTA	1	1910	1910.1	1	.9	0.4		
	2700 PENN	1	1939.7	1940	.9	3.7	2.3		
	960 PENN	1	1939.7	1940.1	2.5	.9	0.2		
	1420 BOUL	8	2250	2253	4	12.0	5.0		
	2695 CRON	3	2251	2253	2.5	12.0	4.0		
	2000 TYKW	3	2252	2253.4	3	12.0	3.0		
	1420 CRON	8	2252.5	2254	4.5	13.0	5.0		
	1000 TYKW	1	2252	2253.2	3	5.0	2.0		
	4995 CRON	3	2253.5	2254	3	6.0	2.0		
	3750 TYKW	1	2253	2253.3	1	5.0	2.0		
	2695 BOUL	8	2253	2253.5	1.5	9.0	4.0		
15	9750 IRKU	45	0341.6	0342	20	73.0			
	9750 IRKU		0341.6	0343		102.0			
	9750 IRKU		0341.6	0344.3		165.0			
	9750 IRKU		0341.6	0346.5		295.0			
	9750 IRKU	1	0418	0419.4	3	8.5			
	9750 IRKU	1	0422	0422.5	1.5	8.5			
	1420 CRON	45	0533	0542.5	31.5	77.0	16.0		
	1415 MANI	4	0536.8	0541.9	11.5	68.0	21.2		
	2000 TYKW	45	0537	0542.2	33	65.0	9.0		
	2695 CRON	45	0538	0538.5	60.5	74.0	17.0		
	2695 MANI	4	0538.4	0542.4	11.4U	86.0	30.8U		RFI
	8800 MANI	3	0539.8	0542.7	11.5	51.0	17.1		
	4995 CRON	45	0539.5	0542	59	51.0	7.0		
	4995 MANI	4	0539.6	0542.7	9.5	69.0	18.4		
	3750 TYKW	45	0540	0542.4	60	93.0	10.0		
	1415 ATHN	4	0540.9	0542.1	4.3	46.2	14.0		
	1000 TYKW	3	0540	0542.5	7 D	27.0	11.0U		
	606 MANI	4	0540.8	0541.5	5.8	13.0	5.9		
	9400 TYKW	45	0541	0542.3	60	34.0	7.0U		
	8800 ATHN	4	0541	0542.9	4.1	37.5	12.5		
	4995 ATHN	4	0541.1	0542.2	4	24.6	7.5		
	2695 ATHN	4	0541	0542.2	4	54.8	17.8		
	2800 OTTA	20	1528	1600	105	2.0	1.0		
	2800 OTTA	1	1811.5	1812	1.5	1.2	0.6		
16	1420 CRON	40	0338.5	0348.5	81	124.0	25.0		
	4995 CRON	47	0339.5	0347.5	59	667.0	153.0		
	2695 CRON	40	0339.5	0348.5	68.5	194.0	52.0		
	8800 MANI	47	0340.5	0347.5	11.4	1390.0	220.0		
	4995 MANI	47	0340.5	0347.4	11.4	960.0	187.0		
	3750 TYKW	45	0340	0347.6	14	410.0	90.0		
	2695 MANI	46	0340.4	0347.4	11.5	230.0	60.0		
	1415 MANI	46	0340.6	0347.3	10.5	113.0	23.8		
	606 MANI	47	0340.7	0412.1	83.5	630.0	163.0		
	9400 TYKW	47	0341	0347.5	11	1100.0	240.0		
	2000 TYKW	45	0341	0347.3	13	195.0	40.0		
	1000 TYKW	45	0341	0344.4	12	830.0	150.0		
	500 HIRA	45	0341.5		75		60.0		
	500 HIRA		0341.5	0347.2		170.0			
	500 HIRA		0341.5	0359.7		220.0			
	500 HIRA		0341.5	0402.6		280.0			
	500 HIRA		0341.5	0410		350.0			
	500 HIRA		0341.5	0412		380.0			
	500 HIRA		0341.5	0418.7		370.0			
	500 HIRA		0341.5	0423.6		300.0			
	200 HIRA	45	0343		80		50.0		
	200 HIRA		0343	0347.5		240.0			
	200 HIRA		0343	0407.2		480.0			
	200 HIRA		0343	0411.8		470.0			
	200 HIRA		0343	0419.5		470.0			
	100 HIRA	45	0343	0345	40	80.0	7.0		
	8800 MANI	29	0351.9	0351.9	47	74.0	19.9		
	4995 MANI	30	0351.9	0351.9	47.2	40.0	14.8		
	2695 MANI	30	0351.9	0351.9	65	15.5	6.0		
	1415 MANI	30	0351.1	0351.1	64	14.0	5.4		
	9400 TYKW	29	0352		120	55.0	15.0		
	3750 TYKW	29	0354		130	12.0	5.0		
	2000 TYKW	40	0354	0411.3	59	59.0	5.0		
	1000 TYKW	40	0359	0423.4	54	510.0	70.0		
	1415 MANI	41	0405.1	0427.3	38.3	110.0	16.2		
	9400 TYKW	1	0406	0407	2	6.0	2.0		
	4995 MANI	41	0406.5	0422.4	18.5	22.2	7.4		
	3750 TYKW	45	0406	0406.8	7	42.0	5.0		
	2695 MANI	41	0406.5	0419.5	18.4	17.9	6.0		
	9400 TYKW	1	0409	0409.6	1	5.0	2.0		
	3750 TYKW	45	0416	0419.3	9	20.0	5.0		
	9400 TYKW	45	0418	0422.3	6	17.0	3.0		

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	2695	CRON	8	0502.5	0504	5	22.0	6.0		
	2695	MANI	4	0502.7	0503.9	1.7	22.6	4.8		
	1420	CRON	45	0502.5	0504	5	8.0	2.0		
	1415	MANI	1	0502.7	0504.1	1.7	6.5	2.2		
	3750	TYKW	3	0503	0503.9	12	7.0	2.0		
	2000	TYKW	3	0503	0503.9	7	21.0	4.0		
	9750	IRKU	3	0541	0542.5	9	25.5			
	221	ABST	41	0700	0933	240	9.0			
	210	IZMI	7	0700		180	30.0			
	200	GORK	44	0803 E		117		5.0		
	2800	OTTA	21	1405	1445	160	1.8	1.1		
	2800	OTTA	1	1426.9	1427	.5	.8	0.4		
	10700	PENN	24	1528	1723.8		26.1			
	2800	OTTA	20	1805	1845	105	2.0	1.2		
	8800	SGMR	46	2054.9	2055.1	4.4	28.3	6.0		
	8800	SGMR	46		2056.4		27.3			
	4995	SGMR	46	2054.7	2055.4	4.5	43.1	10.0		
	4995	SGMR	46		2056.3		39.2			
	2700	PENN	45	2054.9	2055.5	11.2	70.6	13.4		
	2695	SGMR	46	2054.7	2055.4	5.1	48.8	12.0		
	2695	SGMR	46		2056.2		48.3			
	1420	BOUL	3	2054	2055.5	4.5	7.0	2.0		
	1415	SGMR	2	2054.9	2056.6	3.9	5.0	2.0		
	606	SGMR	2	2054.9	2055.4	3.6	7.0	3.0		
	10700	PENN	3	2055	2056	3 D	14.4			
	245	BOUL	42	2115	2129	99			2	
	2800	OTTA	4	2154.7	2155.5	4	50.0	25.0		
	2695	PENT	29	2158.7		40	7.8	2.9		
	100	HIRA	45	2234.8	2235.3	1	40.0	15.0		
	4995	BOUL	45	2254.5	2256	23	35.0	8.0		
	2695	BOUL	21	2255.5	2256.5	26.5	52.0	10.0		
17	3750	TYKW	20	0000	0100	180	5.0	2.0		
	9400	TYKW	20	0005	0013	80	5.0	2.0		
	3750	TYKW	1	0009	0012.2	10	7.0	2.0		
	9400	TYKW	45	0200	0202	3	8.0	5.0		
	606	MANI	2	0556.2	0557.3	1.8	6.2	1.2		
	4995	CANR	3	0824	0825	1.5	7.0	3.0		
	2695	CANR	3	0824	0825	1.5	7.0	2.0		
	1420	CANR	3	0824.5	0825.5	2	3.0	1.0		
	221	ABST	3	0942.8	0943.5	2.5	11.0	2.0		
	1420	CANR	8	1043	1044	2.5	22.0	8.0		
	113	POTS	45	1211.4	1212.2	3.2	17000.0	350.0		
	29	UPIC	45	1211.5		3.5				
	23	POTS	45	1211.4	1212.2	2.8	40000.0	2500.0		
	410	SGMR	44	1213 E	1446	211 D	25.4			
	245	SGMR	44	1213 E	1423	211 D	89.0			
	930	BORD	45	1252	1252.7	2	8.0	2.0		
	2800	OTTA	24	1430		15	2.0			
	245	BOUL	42	1444	1516	35			2	
	4995	CANR	8	1726	1727	1.5	15.0	5.0		
	2695	CANR	8	1726	1727	1.5	9.0	3.0		
	1420	CANR	8	1727	1728	1.5	5.0	2.0		
	1420	CANR	8	1746	1746.5	1	3.0	1.0		
	2800	OTTA	20	1905	1930	40	1.0	0.5		
	2695	PENT	21	2002	2009	15	2.4	1.2		
	1420	BOUL	3	2002.5	2004	2	1.0			
	2800	OTTA	3	2003.9	2004	1	12.0	60.0		
	2700	PENN		2003.8	2004	1	15.3	4.9		
	2695	BOUL	8	2004	2004.5	1	11.0	4.0		
	2695	PENT	20	2045	2115	50	2.2	1.1		
	2695	BOUL	3	2236.5	2237.5	2	4.0	2.0		
	1420	CRON	3	2251	2252	1.5	4.0	1.0		
	2695	CRON	45	2254	2257.5	11.5	7.0	2.0		
	1420	CRON	21	2254.5	2258.5	60	8.0	2.0		
18	100	HIRA	45	0410.5	0411.6	2	65.0	20.0		
	100	HIRA	45	0520	0521	2.5	400.0	40.0		
	4995	CANR	3	0819	0820	1.5	7.0	2.0		
	2695	CANR	3	0819.5	0819	1.5	3.0	1.0		
	1420	CANR	3	0820	0821	1.5	2.0	1.0		
	2695	CANR	3	0827.5	0828.5	1.5	4.0	1.0		
	1420	CANR	3	0827.5	0828.5	1.5	2.0	1.0		
	210	IZMI	41	0833	0833.3	6	42.0			
	4995	CANR	3	0848.5	0850	3.5	6.0	2.0		
	1420	CANR	3	0850	0851	2	2.0	1.0		
	221	ABST	3	0945	0945.8	1.8	18.0	2.0		
	1500	BERL	46	1227.5	1227.9	1.5	2.7	0.7		
	1420	CANR	8	1228	1228.5	1.5	4.0	1.0		
	930	BORD	45	1327	1328.2	3	8.0	2.0		
	113	POTS	40	1346	1346	1	280.0	9.0		
	245	SGMR	43	1456.1	1604.8	370.9D	98.3			
	245	BOUL	42	1551	1605	67			2	
19	221	ABST	1	0853.5	0853.8	.8	27.0			
	221	ABST	1	0907.5	0907.8	.5	20.0			
	930	BORD	5	1108	1108.7	1	16.0	1.0		
	3000	BERL	1	1201.5	1202.4	1.5	3.1	1.0		
	1500	BERL	2	1202.3	1202.5	.7	1.6	0.4		
	930	BORD	40	1550	1550.8	3	13.0	2.0		

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	2800	OTTA	20	1730	1935	245	20.0	12.0		
20	3100	CRIM	20	0720	0737.	47	5.0	2.0		
	930	BORD	45	1218	1218.8	1	8.0	2.0		
	245	BOUL	42	1445	1511	39			1	
	245	SGMR	43	1640 U	1907.7	267 D	80.7			
	245	BOUL	42	1651	1854	383 D			2	
	410	SGMR	43	1843	1855.8	144 D	16.7			
	208	VORO	44	2300	2325	180	22.8	14.0		
	245	SGMR	6	1832.7	1834.7	8.9	38.6	14.6		
	410	SGMR	6	1833.8	1835.1	5.4	5.7	2.2		
	4995	SGMR	1	1834.7	1834.8	.3	1.2	.6		
	2695	SGMR	46	1834.5	1834.6	.9	6.6	3.0		
	2695	SGMR	46		1834.9		5.8			
	1415	SGMR	46	1834.7	1835	3.5	42.2	17.0		
	1415	SGMR	46		1835.2		41.6			
	606	SGMR	4	1834.3	1835.3	3.8	14.0	5.8		
21	100	HIRA	27	0512	0537	59	8.0	3.0		
	100	HIRA	41	0520.5	0549	35	40.0			
	221	ABST	41	0700	0908.8	240	17.0			
	204	KIEV	42	0730 E		105	23.0	11.0		
	3100	CRIM	24	1000	1100		4.0			
	930	BORD	45	1011	1011.2	1	9.0	2.0		
	410	SGMR	44	1216 E	1732.6	532 D	19.4			
	245	SGMR	44	1216 E	1732.4	532 D	123.8			
	245	BOUL	42	1432	1454	84			1	
	2800	OTTA	3	1418.2	1418.7	4	14.0	7.0		
	2695	CANR	3	1418	1418.5	1.5	3.0	1.0		
	2800	OTTA	20	1455	1655	245	3.0	1.8		
	1420	CANR	45	1736.5	1738.5	4	4.0	1.0		
	2695	CANR	45	1737.5	1738.5	5	6.0	2.0		
	4995	CANR	3	1738.5	1740	3	7.0	3.0		
	4995	CANR	3	1754.5	1755.5	2	16.0	6.0		
	1420	CANR	3	1754.5	1756.5	3.5	7.0	2.0		
	2695	CANR	3	1755.5	1757	2.5	12.0	4.0		
	245	BOUL	42	1842	1949	172			1	
	2800	OTTA	20	1905	1955	135	2.0	1.0		
	245	BOUL	41	2154	2155	2			1	
	2695	BOUL	3	2200.5	2201.5	2	4.0	2.0		
	1420	BOUL	3	2200	2201	1.5	2.0	1.0		
	245	BOUL	42	2222	2313	50 D			1	
	1420	CRON	3	2310	2303	6	2.0	1.0		
	208	VORO	24	2350	0100	115	15.6	11.4		
22	204	KIEV	42	0930 E		120	17.0	8.0		
	3100	CRIM	1	1027	1030	7	3.0	1.0		
	245	SGMR	44	1217 E	1712.6	532 D	31.1			
	2800	OTTA	20	1410	1655	230	4.2	2.6		
	245	BOUL	42	1449	1502	30			1	
	245	BOUL	42	1528	2303	465 D			1	
	2695	CANR	3	1729	1730	1.5	3.0	1.0		
	2800	OTTA	20	1805	1935	200	2.2	1.1		
	1420	CRON	3	2235.5	2237	3	3.0	1.0		
23	3750	TYKW	20	0522	0535	40	4.0	2.0		
	200	GORK	44	0609 E		318		5.0		
	950	GORK	20	0614.5	0620.1	9	9.5	4.7		
	2950	GORK	20	0615	0619.8	8.4	21.0	11.0		
	650	GORK	20	0615	0620.7	10.4	15.0	7.5		
	9100	GORK	20	0618 U	0620.7	7.5	45.0	20.0		
	4995	CRON	3	1002.5	1003.5	1.5	3.0	1.0		
	1420	CRON	3	1003.5	1005	2	3.0	1 .0		
	204	KIEV	42	1200 E		60	14.0	7.0		
	245	SGMR	44	1217 E	1603	532 D	25.2			
	2800	OTTA	20	1432	1437	10	1.8	0.9		
	2800	OTTA	21	1443	1505	85	2.6	1.3		
	2800	OTTA	1	1444	1445.5	5	26.0	13.0		
	2695	CANR	3	1444	1445.5	2.5	3.0	1.0		
	2800	OTTA	1	1514	1514.7	1	1.0	0.5		
	245	BOUL	6	1531	1532	2			2	
	245	BOUL	42	1554	1635	46			2	
	4995	CANR	3	1726.5	1727.5	1.5	10.0	3.0		
	2695	CANR	3	1726.5	1727.5	2	7.0	2.0		
	1420	CANR	3	1727.5	1728.5	1.5	4.0	2.0		
	245	BOUL	41	1754	1757	4			1	
24	3750	TYKW	1	0441	0441.7	2	2.0	1.0		
	4995	CRON	3	1045.5	1046	1	11.0	4.0		
	2695	CRON	3	1045.5	1046	1.5	6.0	2.0		
	245	SGMR	44	1217 E	2017.1	533 D	78.3			
	204	KIEV	42	1220		60 D	18.0	10.0		
	245	BOUL	42	1709	1711	20			1	
	245	BOUL	42	1838	1913	37			1	
	245	BOUL	42	1944	2017	206			2	
	2695	CANR	3	1612	1613	2	4.0	2.0		
	2695	PENT	2	2205.5	2206	2.5	2.4	1.4		
25	3750	TYKW	1	0602	0602.7	2	3.0	1.0		
	204	KIEV	44	0700 E		320	95.00	10.0		

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	245	SGMR	44	1217 E	1728.3	533 D	59.0			
	245	BOUL	42	1439	1445	58			1	
	245	BOUL	42	1624	1633	308			2	
	210	IZMI	41	0819	0823.7	8	950.0			
	234	POTS	40	0823.3	0823.3	2.9	1400.0U	7.0		
	113	POTS	40	0823.3	0823.3	3.1	800.0	13.0		
	1500	BERL	46	0901.2	0903	2.3	14.0	2.4		
	3000	BERL	1	1220.5	1221.7	15	53.0	16.0		
	1500	BERL	1	1220.5	1221.7	2.2	4.7	1.6		
	2695	CANR	8	1221.5	1222	1	9.0	4.0		
	1420	CANR	8	1221.5	1222.5	1.5	9.0	1.0		
	113	POTS	45	1221.2	1221.3	.7	200.0	40.0		
	2800	OTTA	20	1410	1535	190	2.6	1.3		
	245	BOUL	41	2225	2229	6			2	
26	3750	TYKW	1	0442	0442.4	1	2.0	1.0		
	3750	TYKW	1	0526.5	0526.8	1	2.0	1.0		
	2000	TYKW	1	0526.5	0526.9	1	2.0	1.0		
	221	ABST	41	0700	0811.5	240	52.0			
	204	KIEV	44	0700 E		380 D	45.0	12.0		
	245	SGMR	44	1218 E	1421	533 D	24.0			
	113	POTS	40	1342.4	1342.4	9.6	250.0	2.0		
	1415	SGMR	20	1805	1809.3	16.4	1.9	1.0		
	2695	SGMR	22	1812.5	1818.4	23.9	3.2	1.5		
	1420	BOUL	3	1817.5	1818.5	2	1.0			
	1420	BOUL	3	2015	2016	2.5	1.0			
	2695	CRON	3	2359		2.5	5.0	2.0		
27	4995	CRON	3	0000	0000.5	2.5	11.0	3.0		
	2000	TYKW	1	0000	0000.8	3	3.0	1.0		
	208	VORO	42	0013	0056	48	56.0			
	200	HIRA	45	0254.8	0255	1	500.0	110.0		
	4995	CRON	8	0300	0301	1.5	13.0	5.0		
	210	IZMI	1	1001	1006.8	21	80.0			
	221	ABST	41	1002.2	1006	54.5	18.0			
	4995	CANR	3	1138.5	1139.5	1.5	5 .0	2.0		
	245	SGMR	44	1218 E	1851.4	534 D	112.8			
	245	BOUL	42	1457	1516	83			1	
	245	BOUL	41	1703	1704	3			1	
	245	BOUL	42	1726	1741	51			2	
	245	BOUL	42	1839	1852	51			2	
	8800	SGMR	3	2101.9	2102.2	1.1U	21.4	5.0		
	4995	SGMR	3	2101.9	2102.2	1.1U	20.0	5.0		
	2695	SGMR	3	2101.6	2102.3	1.4U	17.9	4.0		
	1415	SGMR	45	2101	2101.4	2.5	7.0	3.5		
	1415	SGMR	45		2103.3		12.0			
	606	SGMR	45	2102.2	2102.6	1.3	4.6	3.5		
	606	SGMR	45		2103.2		17.4			
	410	SGMR	6	2103.2	2103.2	1.1	28.8	4.0		
	245	SGMR	6	2103	2103.2	1.3	125.0	12.0		
	245	BOUL	42	2125	2127	43			2	
	245	BOUL	42	2220	2253	53			2	
28	204	KIEV	42	0700 E		70	21.0	9.0		
	930	BORD	45	0917	0917.7	1	76.0	2.0		
	204	KIEV	44	1205		70 D	31.0	10.0		
	245	SGMR	44	1218 E	1912.3	534 D	47.3			
	245	BOUL	42	1533	1608	54			1	
	245	BOUL	42	1636	1643	39			1	
	2800	OTTA	20	1742	1748	55	1.4	0.7		
	245	BOUL	42	1836	1904	35			1	
29	204	KIEV	42	0700 E		210	19.0	8.0		
	7000	SAOP	41	1249.4		135.5U	22.2			
	7000	SAOP	22	1249.4		12.7	15.5			
	7000	SAOP	22	1302.5		23.9	13.3			
	7000	SAOP	22	1326.4		8.8	11.1			
	7000	SAOP	22	1334.8		9.8	8.8			
	7000	SAOP	22	1345.1		10.5	13.3			
	7000	SAOP	22	1355.3		9.9	8.8			
	7000	SAOP	22	1407.6		8	10.7			
	7000	SAOP	22	1415.5		9.9	14.3			
	2800	OTTA	20	1420	1525	335	3.8	3.2		
	7000	SAOP	22	1425.6		9.9	14.3			
	7000	SAOP	22	1435.5		9.3	16.0			
	7000	SAOP	22	1444.5		207	178.0			
	9400	HUAN	20	2212.4	2216.6	22.6	18.8	10.9		
30	2695	CRON	3	0022	0026	4.5	4.0	1.0		
	4995	CRON	3	0024.5	0026.5	3.5	7.0	2.0		
	3750	TYKW	1	0025	0027	3	3.0	1.0		
	1420	CRON	3	1023.5	1024	2	2.0	1.0		
	9400	HUAN	20	1352.1	1357.1	9.3	7.3	2.7		
	9400	HUAN	40	1424.6	1630.2	159.5	32.7	9.6		
	2800	OTTA	21	1430	1510	90	3.2	1.6		
	2695	CANR	45	1430.5	1432	3	7.0	3.0		
	9285	ARCE	2	1431.7	1432.2	1.8				
	8800	SGMR	4	1431.6	1432.7	3	11.0	3.5		
	7000	SAOP	4	1431.2	1431.8	1.9	10.1	5.1		
	4995	SGMR	2	1431.6	1432.8	3.4	5.2	1.7		

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

DECEMBER 1972

DEC 1972	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} MEAN	INT	REMARKS
	2830	ARCE	4	1431.3	1432.8	4.5				
	2800	OTTA	2	1431.5	1432.8	3	5.4	2.7		
	2700	PENN	20	1431.5	1432.9	70.9	10.6	1.5		
	2695	SGMR	46	1431.5	1431.8	4.3	4.6	3.1		
	2695	SGMR	46		1432.7		6.4			
	1420	ARCE	4	1431.8	1432	1.7				
	1415	SGMR	4	1431.6	1431.8	3.3	16.0	5.3		
	4995	CANR	3	1432	1432.5	1	7.0	2.0		
	1420	CANR	8	1432	1432.5	2	7.0	2.0		
	960	PENN	8	1432.1	1432.2	.5	2.3			
	2800	OTTA	1	1552.6	1553	1	2.2	1.0		
	2800	OTTA	20	1805	1915	110	1.8	0.9		
	100	HIRA	43	2150 D	2220	635 D	70.0	40.0		
	2695	PENT	8	2205	2205.1	.3	4.6			
31	1420	CRON	45	0200	0207.5	15.5	2.0	1.0		
	4995	CRON	21	0225	0227.5	12.5	9.0	2.0		
	2695	CRON	3	0309	0309.5	1.5	2.0	1.0		
	4995	CRON	3	0430.5	0432	3.5	9.0	2.0		
	3750	TYKW	20	0430	0432.7	18	8.0	2.0		
	1420	CRON	3	0430	0432	4.5	4.0	1.0		
	9400	TYKW	3	0431	0432.6	8	10.0	3.0		
	2000	TYKW	1	0431	0432.8	10	3.0	1.0		
	9750	IRKU	1	0432	0432.6	2	4.6			
	2695	CRON	8	0432	0432.5	1.5	40.0	14.0		
	100	GORK	44	0630 E		141		5.0		
	100	GORK	6	0638.3	0638.8	.9	100.0	10.0		
	204	KIEV	44	0700 E		360 D	25.0	13.0		
	100	GORK	44	0951		69 D		7.0		
	245	SGMR	44	1230 E	1920.7	525 D	16.5			
	4995	CANR	3	1100.5	1101.5	2.5	5.0	2.0		
	9400	HUAN	27	1325.9	1611.4	209.5	16.9	7.7		
	930	BORD	45	1552	1553.2	2	17.0	2.0		
	606	SGMR	4	1552.6	1553.2	1.3	28.8	6.0		
	410	SGMR	6	1552.6	1552.7	2.8	15.3	3.0		
	245	SGMR	6	1552.5	1553.6	1.4	36.1	9.0		
	7000	SAOP	4	1616.1	1616.6	1.4	10.4	7.2		
	7000	SAOP	2	1617.6	1617.8	1.6	9.6	4.8		
	2695	CANR	45	1720.5	1724	4.5	7.0	2.0		
	4995	CANR	45	1721	1725	5.5	11.0	3.0		
	1420	CANR	45	1722	1725.5	4.5	3.0	1.0		
	2695	PENT	20	2037	2037.5	15	1.8	0.9		
	245	BOUL	41	2139	2143	5			2	
	9400	HUAN	22	2203.4	2219.1	35.5	16.9	10.2		

Observatories:

ABST = Abastumani
ARCE = Arcetri
BERL = Berlin-Adlershof
BERN = Berne
BORD = Bordeaux
BOUL = Boulder
CANR = Canary Islands
CRIM = Simferopol
CRON = Carnarvon
GORK = Gorky
HIRA = Hiraiso
HUAN = Huancayo
IRKU = Irkutsk
IZMI = Moscow IZMIRAN
KIEV = Kiev
MANI = Manila
MCMA = McMath-Hulbert
OTTA = Ottawa ARO
PENN = Penn. State Univ.
PENT = Penticton
POTS = Potsdam
SLOU = Slough
SGMR = Sagamore Hill
TOKO = Tokyo
TRST = Trieste
TYKW = Toyokawa
UPIC = Upice
VORO = Voroshilov

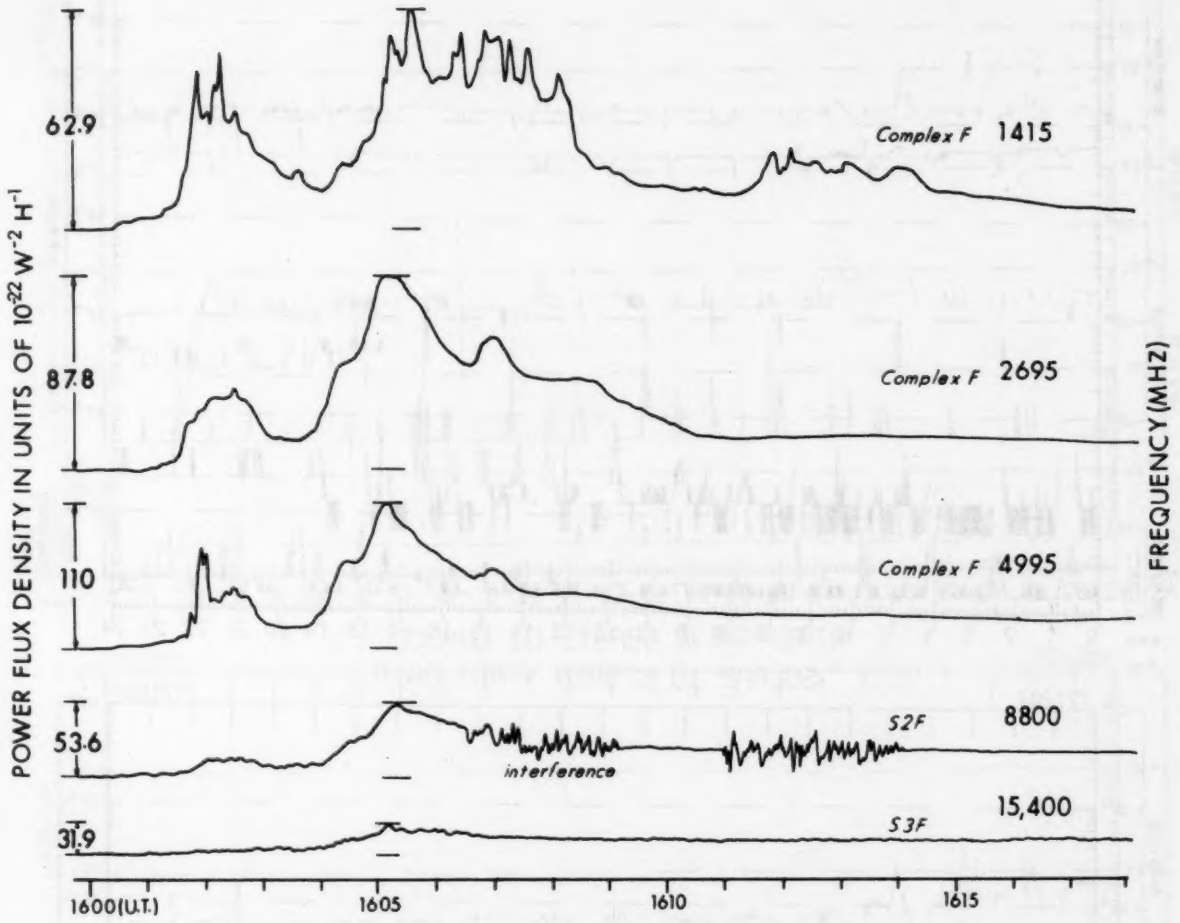
Explanation of Type Code:

1 Simple 1
2 Simple 1F
3 Simple 2
4 Simple 2F
5 Simple
6 Minor
7 Minor +
8 Spike
20 Simple 3
21 Simple 3A
22 Simple 3F
23 Simple 3AF
24 Rise
25 Rise A
26 Fall
27 Rise and Fall
28 Precursor
29 Post Burst Increase
30 Post Burst Increase A
31 Post Burst Decrease
32 Absorption
40 Fluctuation
41 Group of Bursts
42 Series of Bursts
43 Onset of Noise Storm
44 Noise Storm in Progress
45 Complex
46 Complex F
47 Great Burst
48 Major
49 Major +

POWER FLUX DENSITY IN UNITS OF 10^{-22} Wm^{-2} Hz^{-1}

SELECTED SOLAR NOISE BURSTS

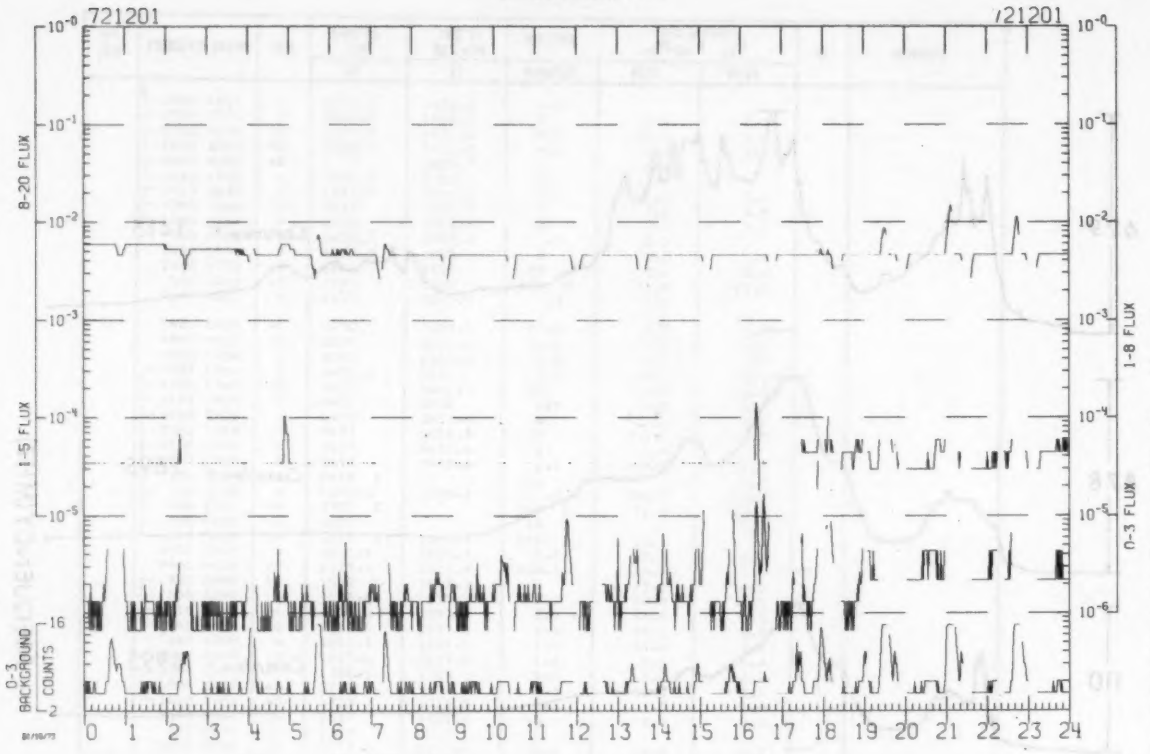
DECEMBER 1972



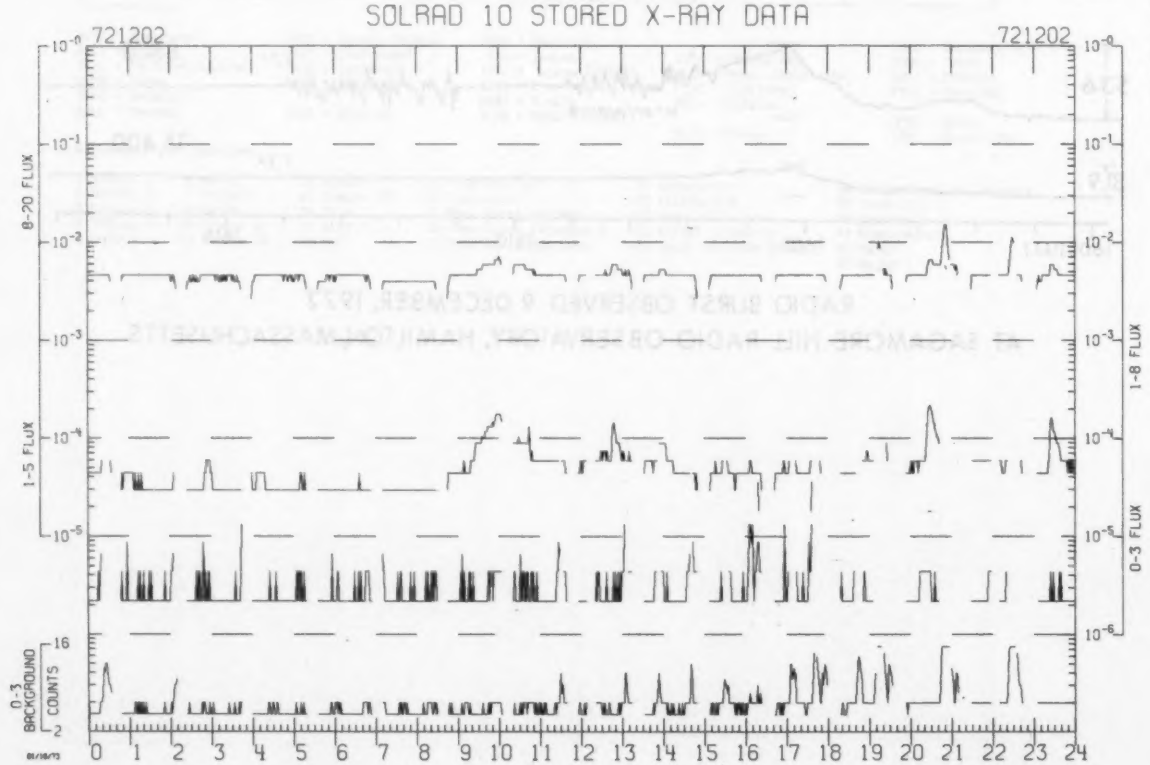
RADIO BURST OBSERVED 9 DECEMBER, 1972
AT SAGAMORE HILL RADIO OBSERVATORY, HAMILTON, MASSACHUSETTS

SOLAR X-RAYS MEASURED BY SATELLITE SOLRAD 10 - EXPLORER 44

DECEMBER 1972



SOLRAD 10 STORED X-RAY DATA



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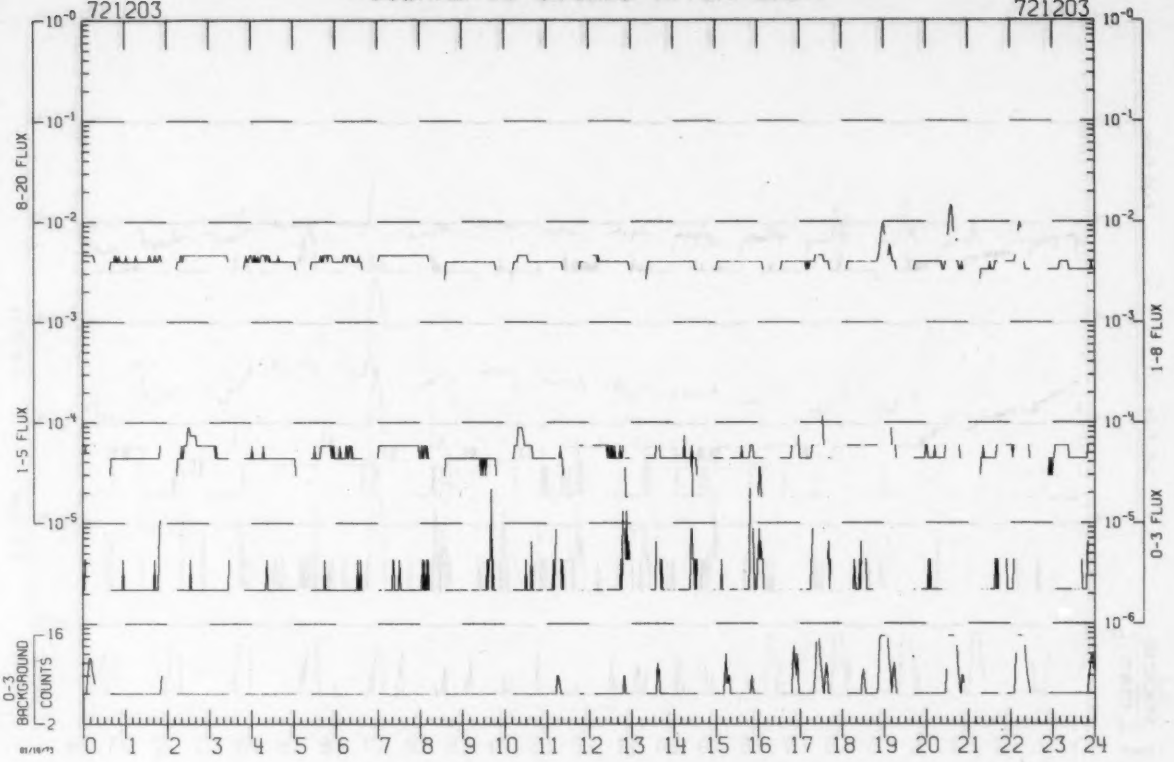

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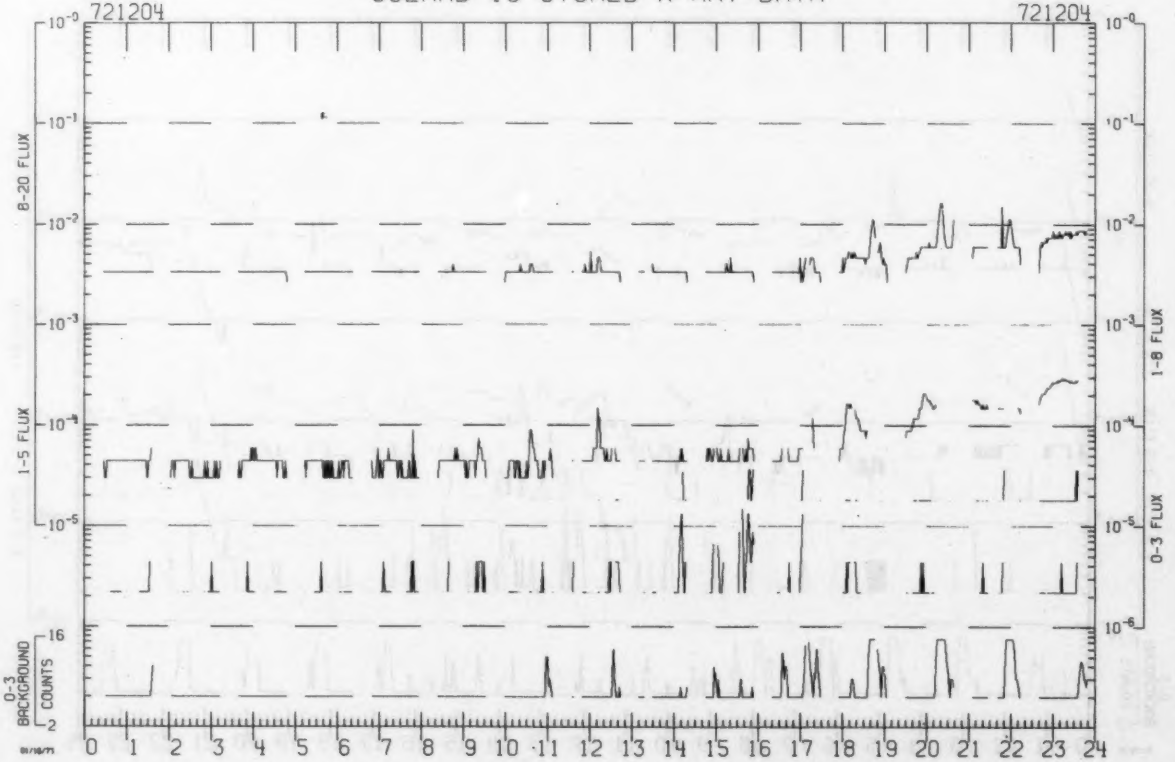

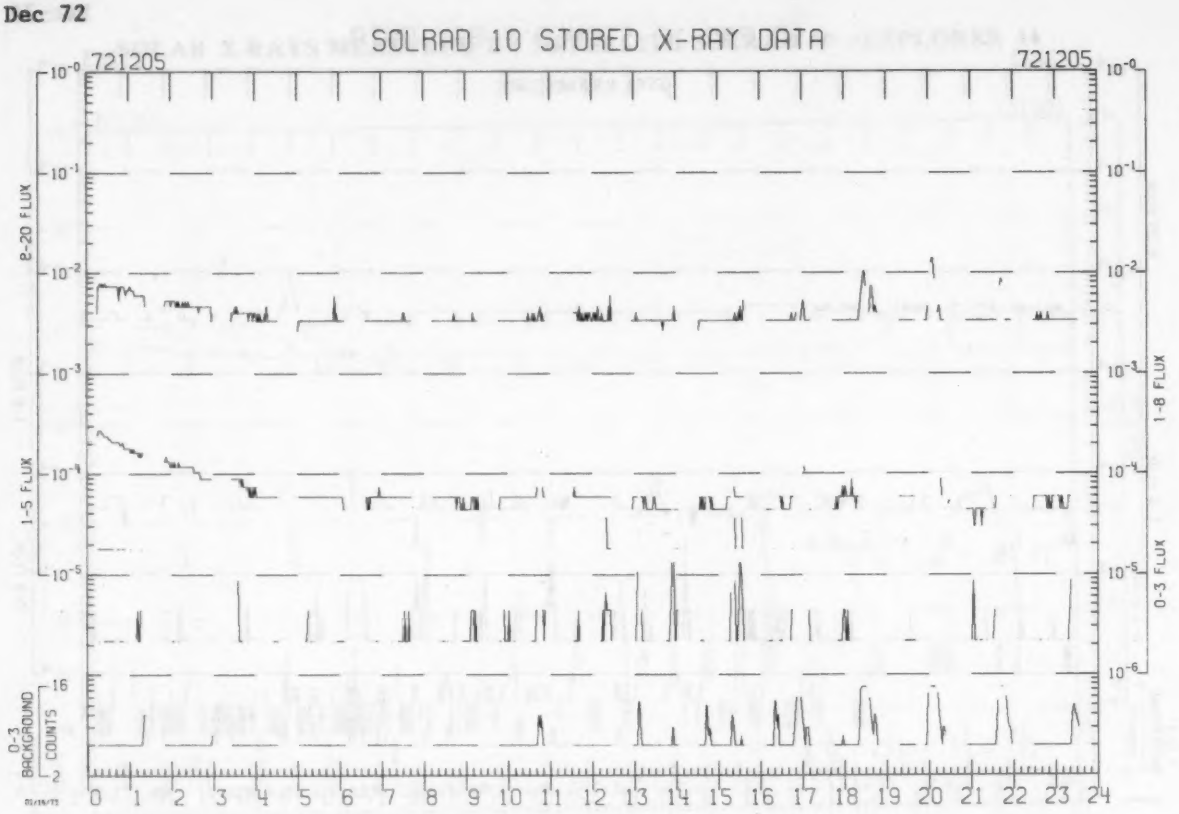
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721205
721205
8-20 FLUX
1-5 FLUX
1-8 FLUX
0-3 FLUX
0-3 BACKGROUND COUNTS
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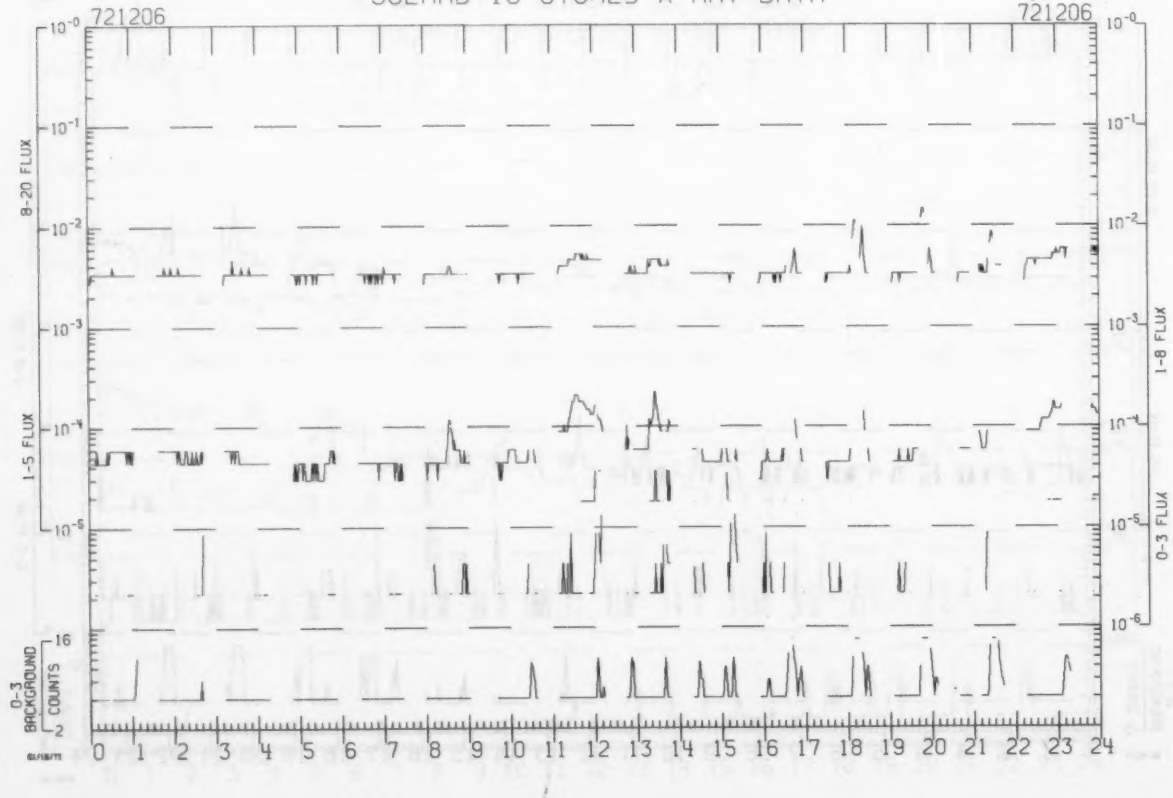
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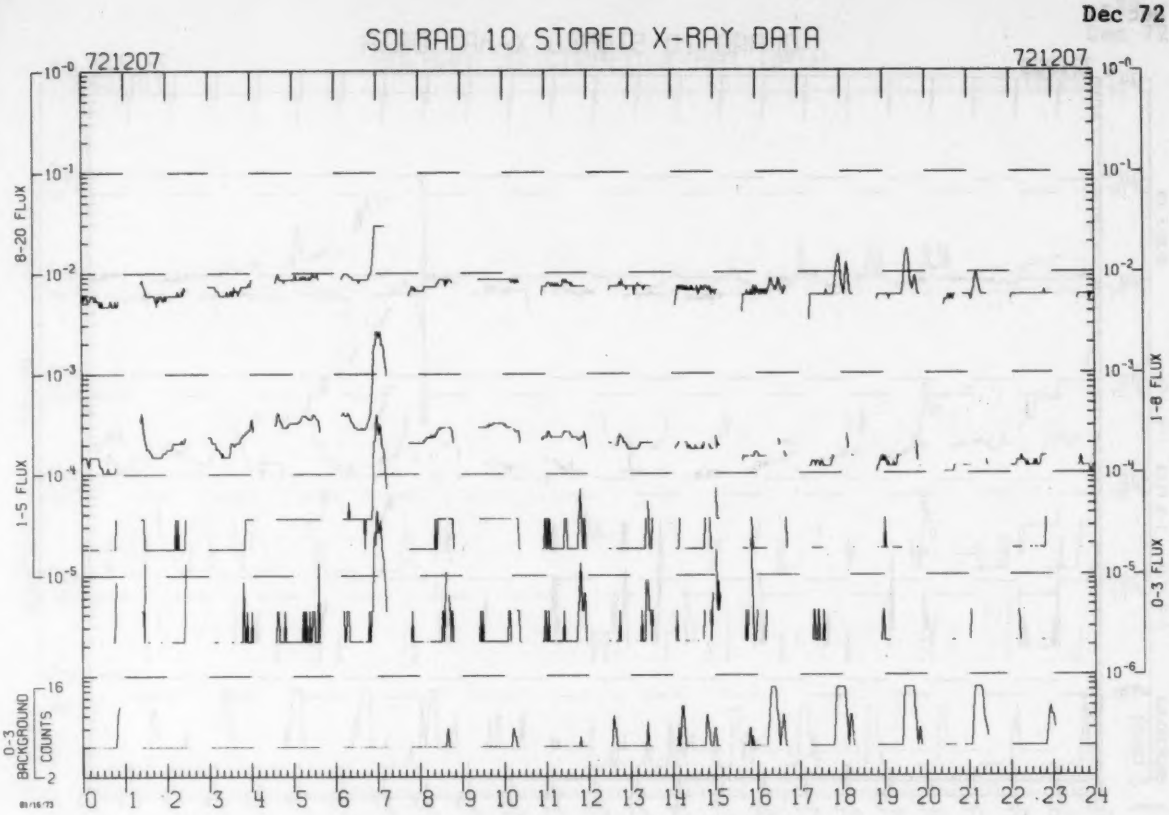
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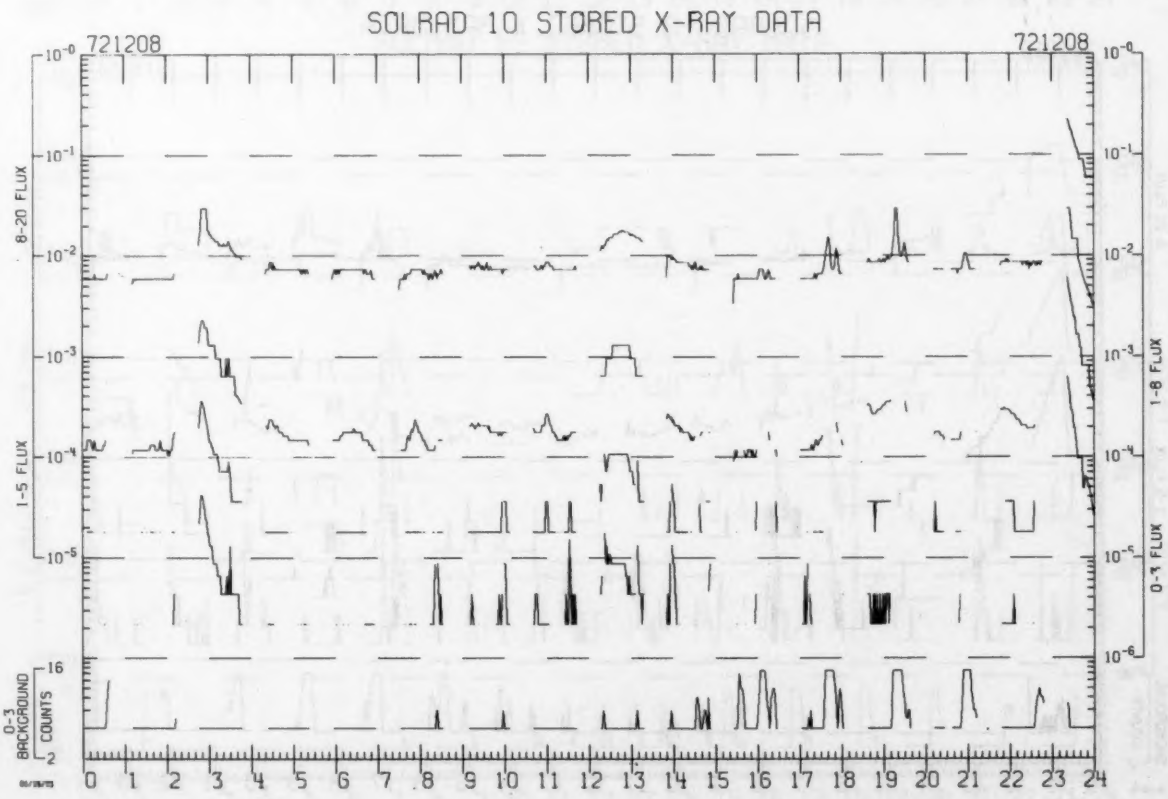
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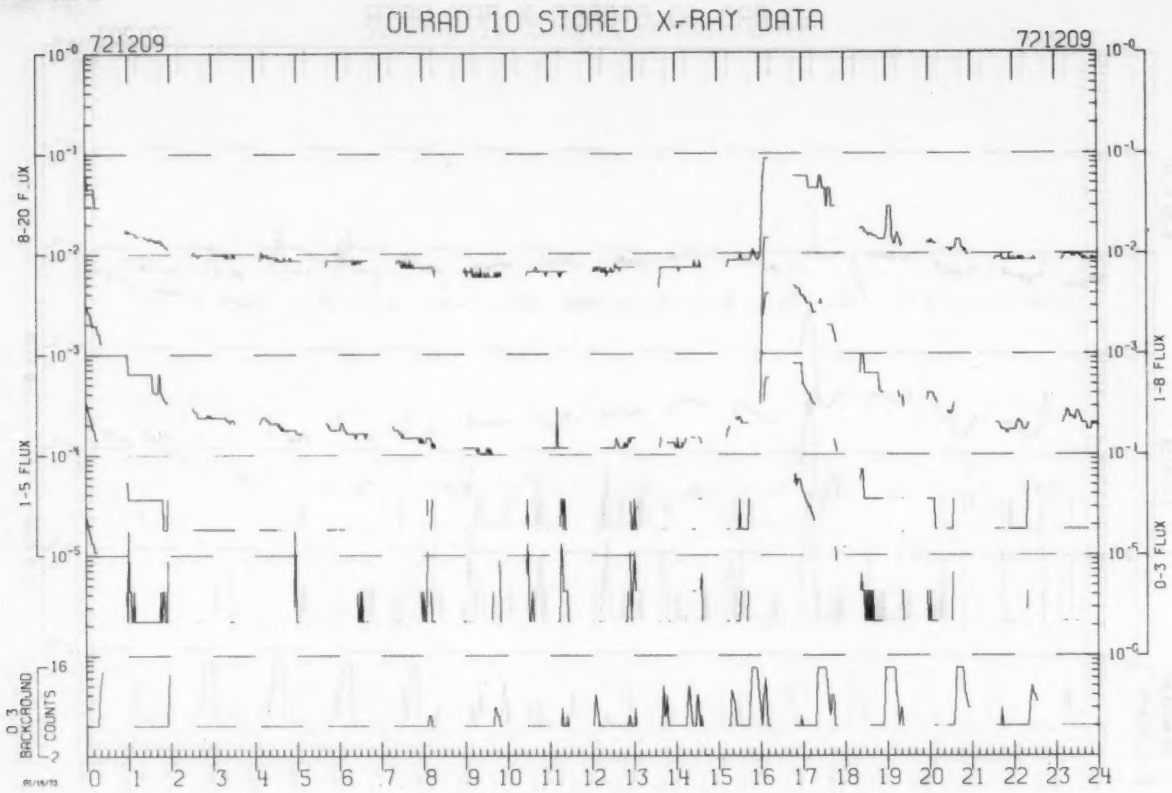
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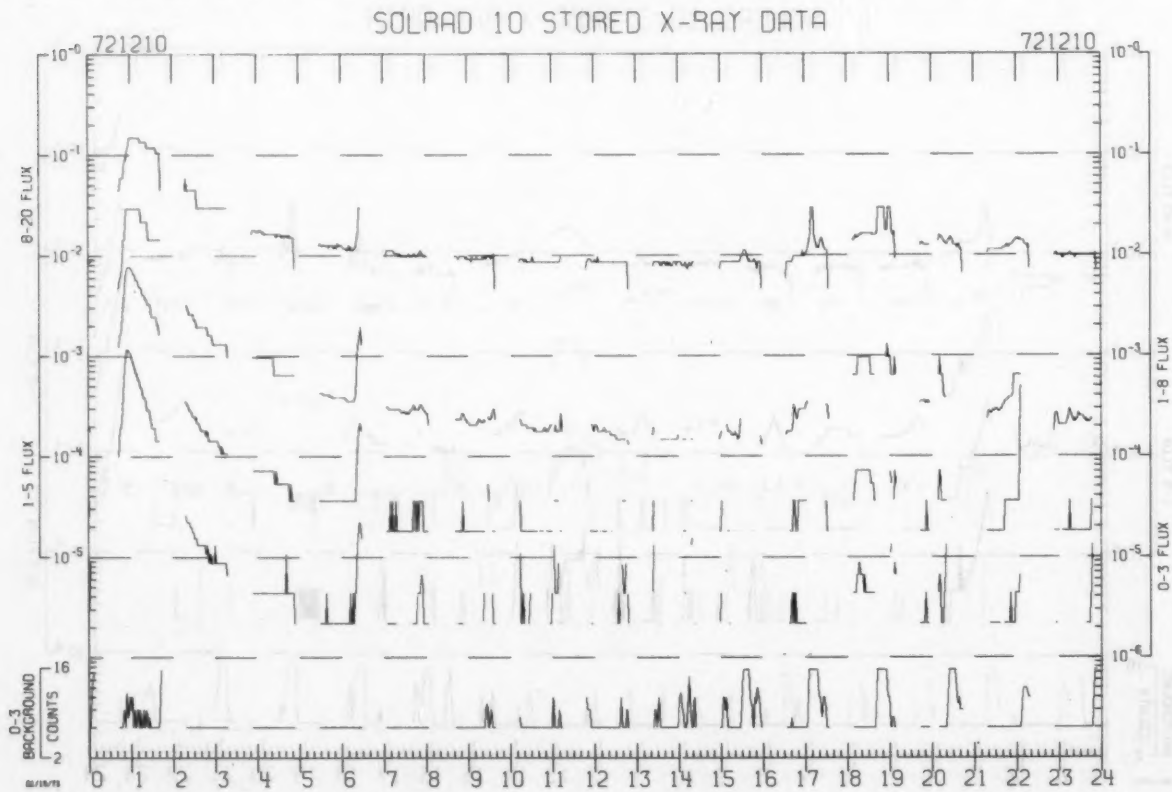
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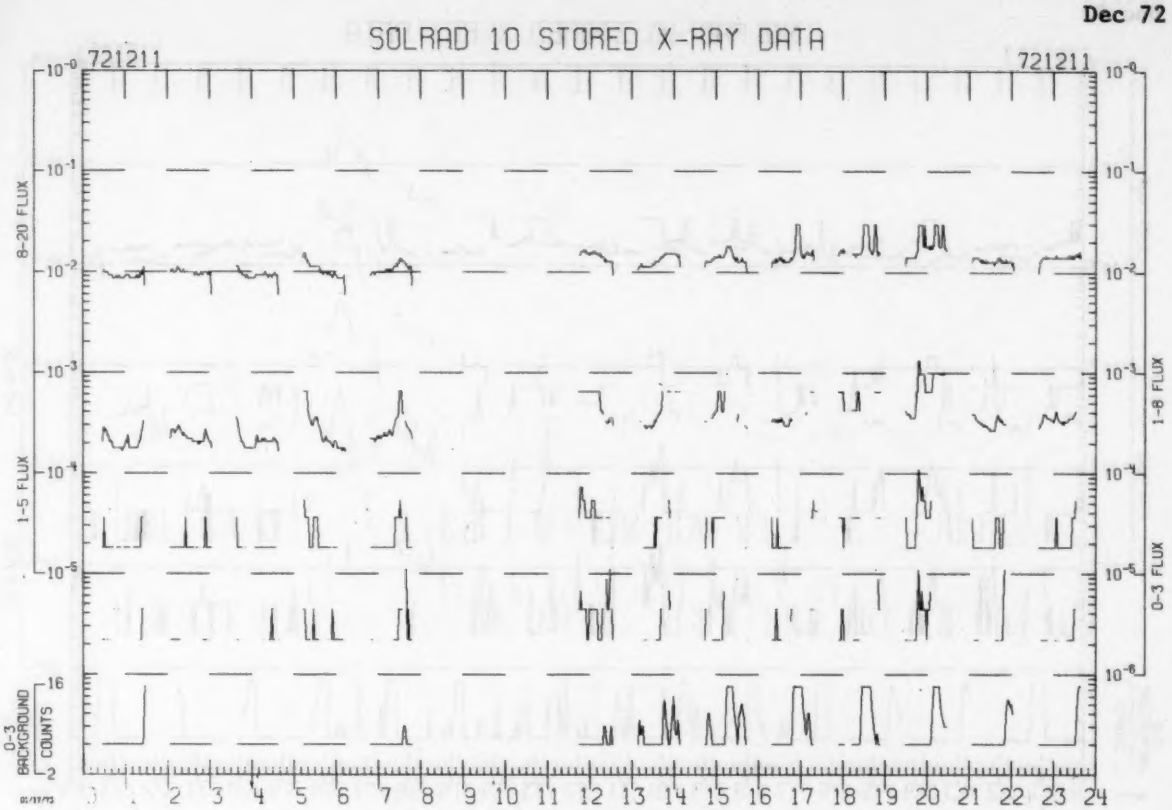
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0-3 BACKGROUND COUNTS
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SOLRAD 10 STORED X-RAY DATA
721212
721212
8-20 FLUX
1-5 FLUX
1-8 FLUX
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0-3 BACKGROUND COUNTS
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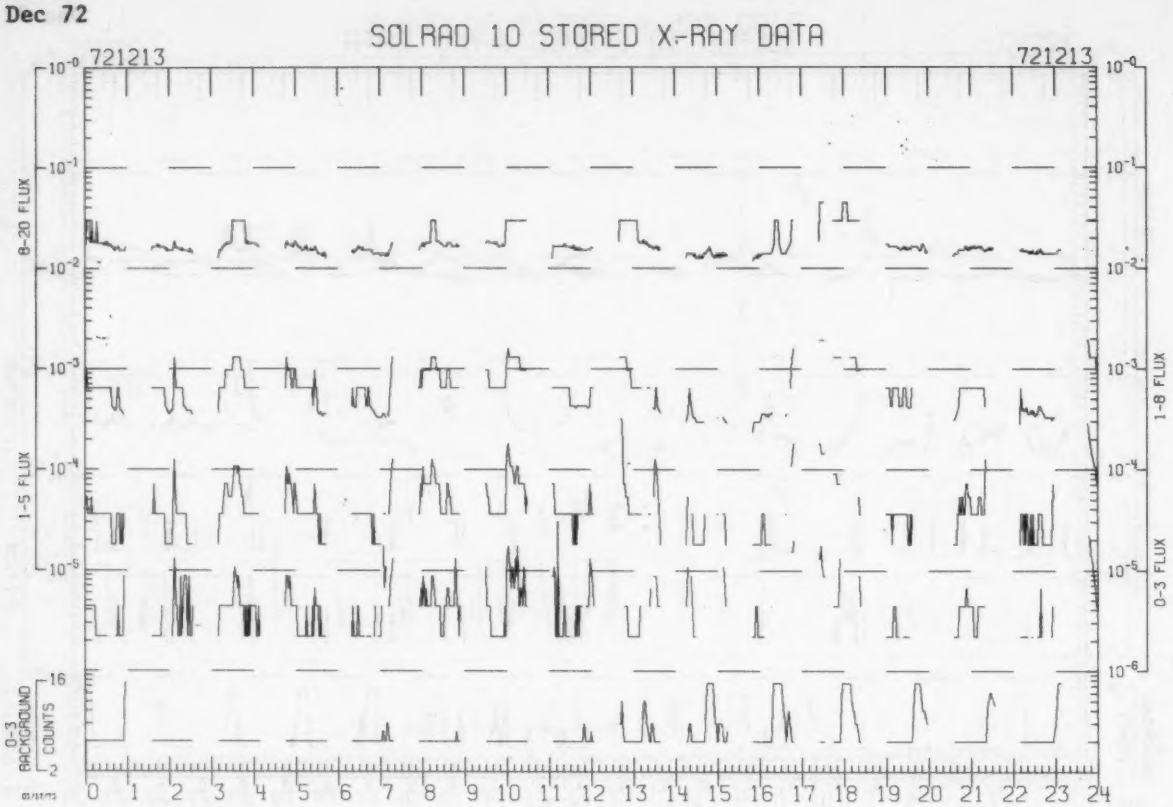
30
Dec 72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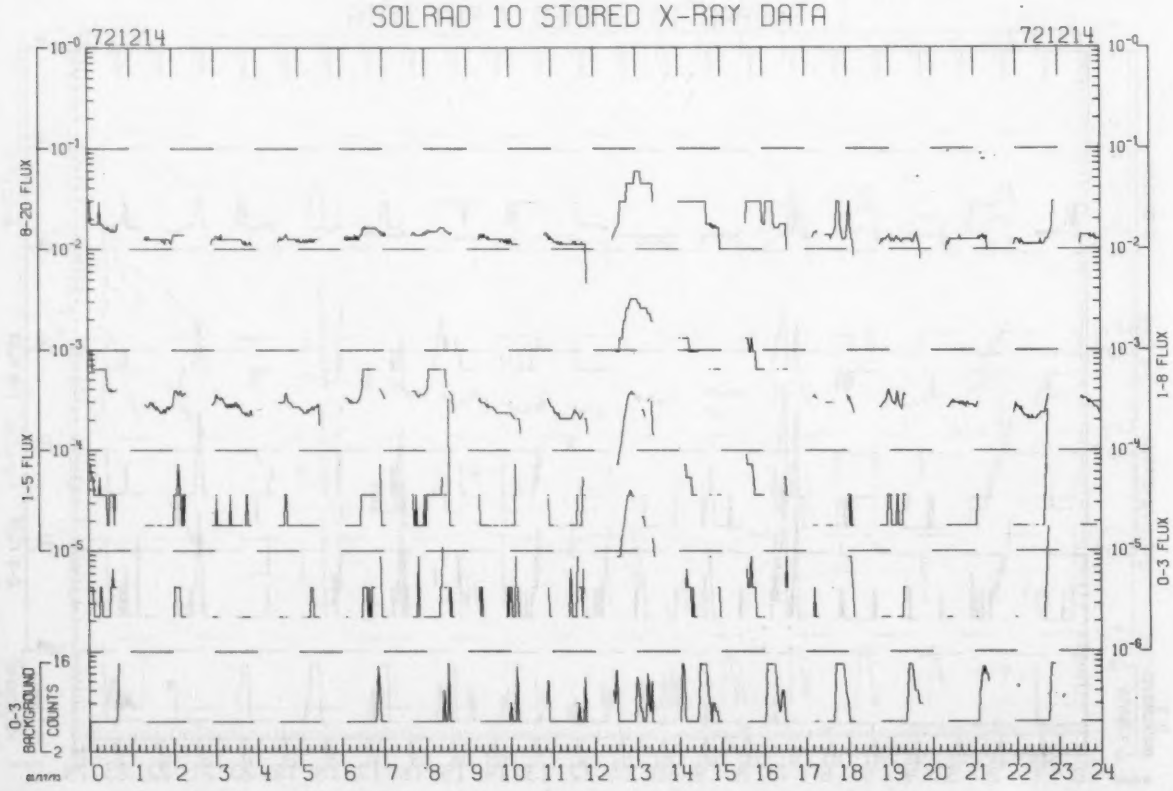
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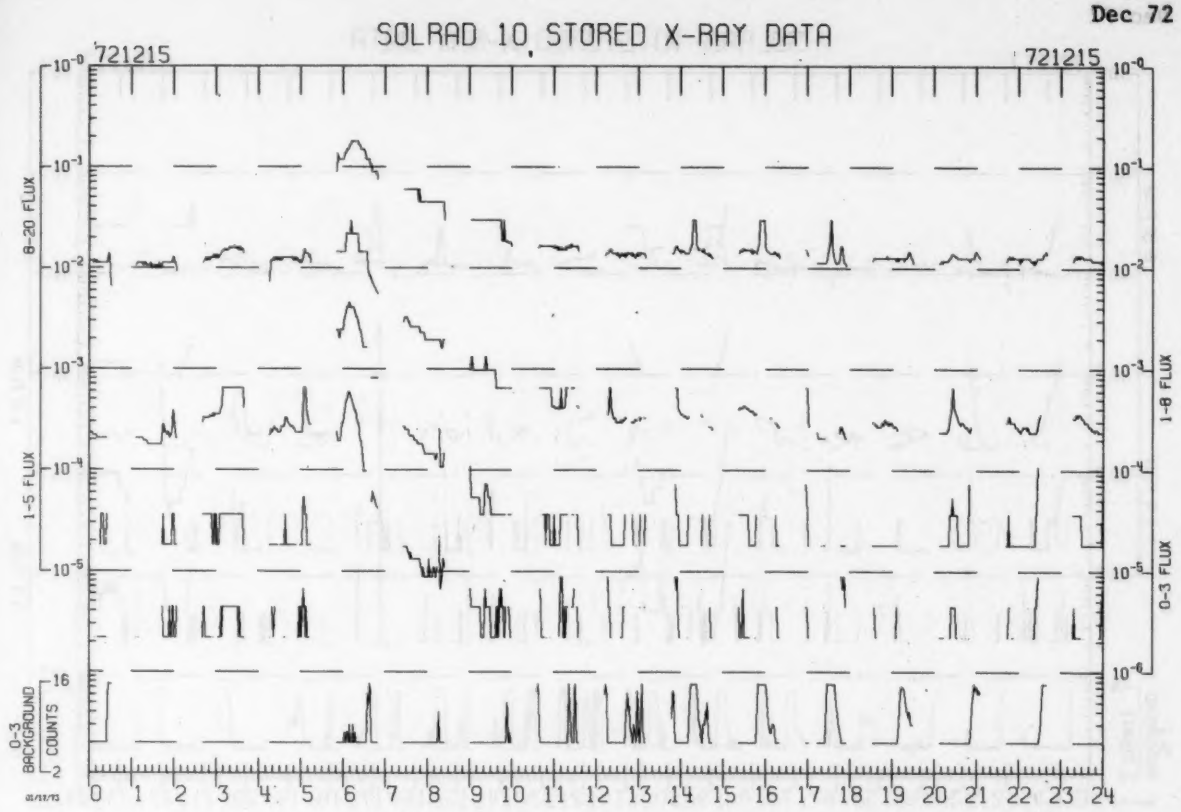
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8-20 FLUX
1-5 FLUX
1-8 FLUX
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0-3 BACKGROUND COUNTS
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SOLRAD 10 STORED X-RAY DATA
721216
721216
8-20 FLUX
1-5 FLUX
1-8 FLUX
0-3 FLUX
0-3 BACKGROUND COUNTS
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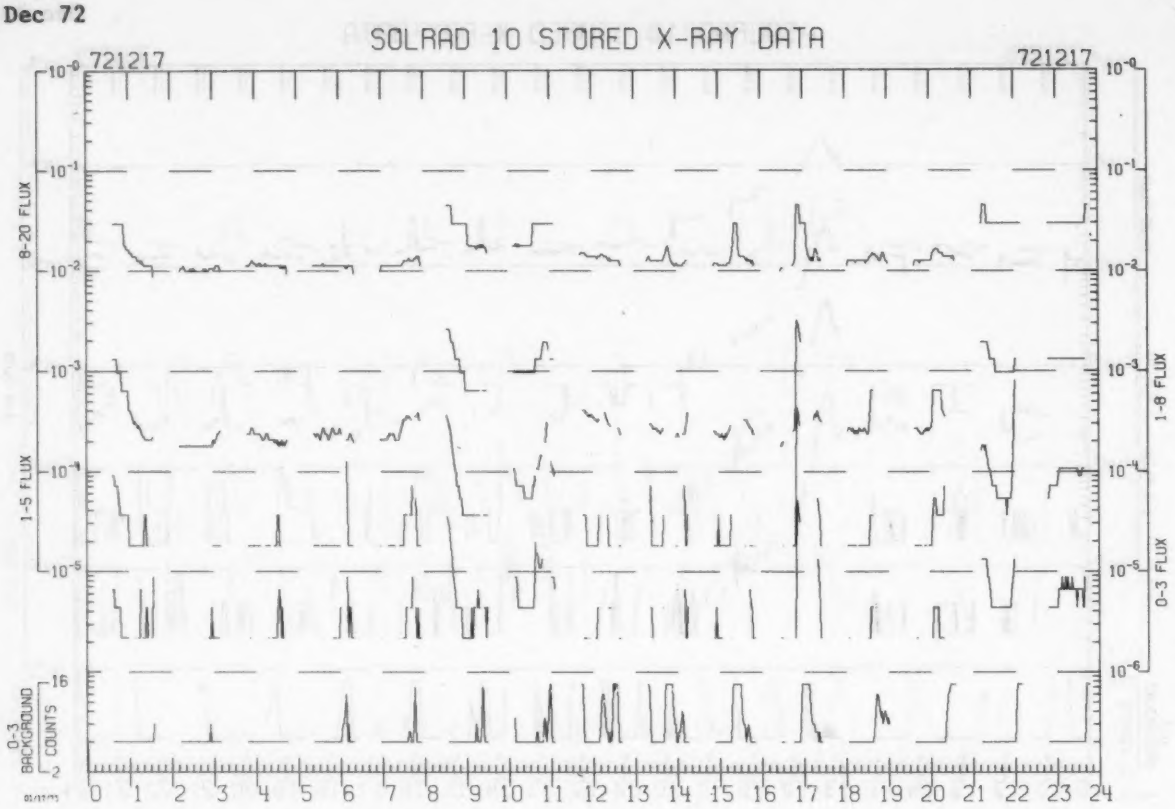
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1-5 FLUX
1-8 FLUX
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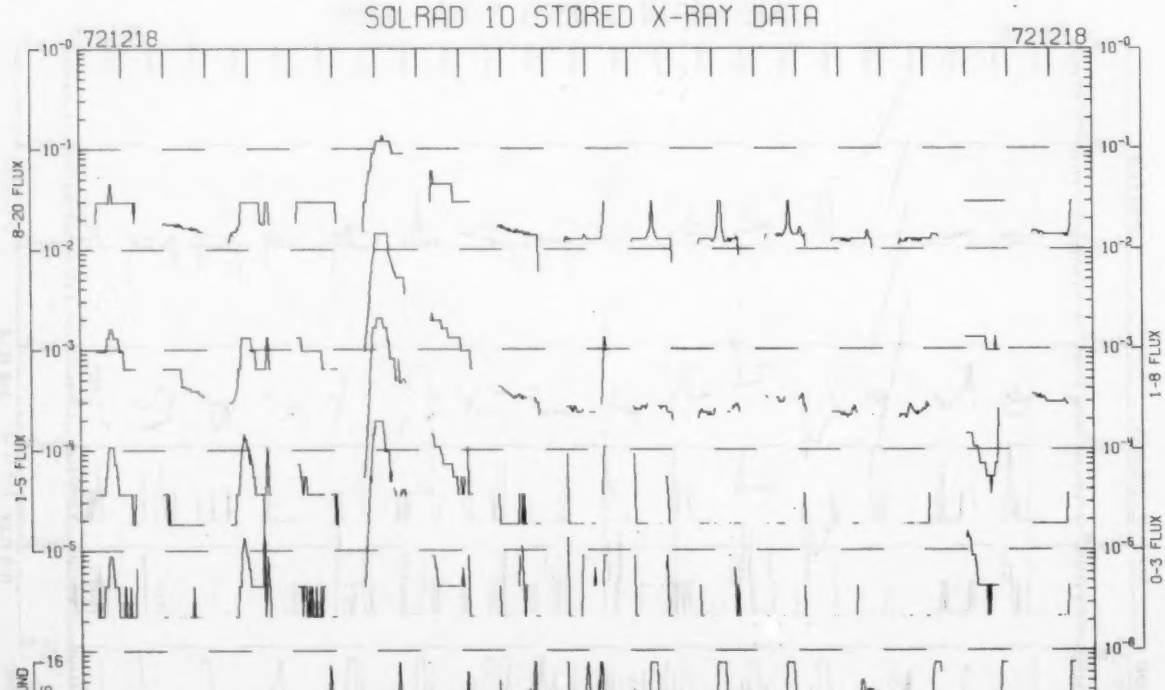
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721219
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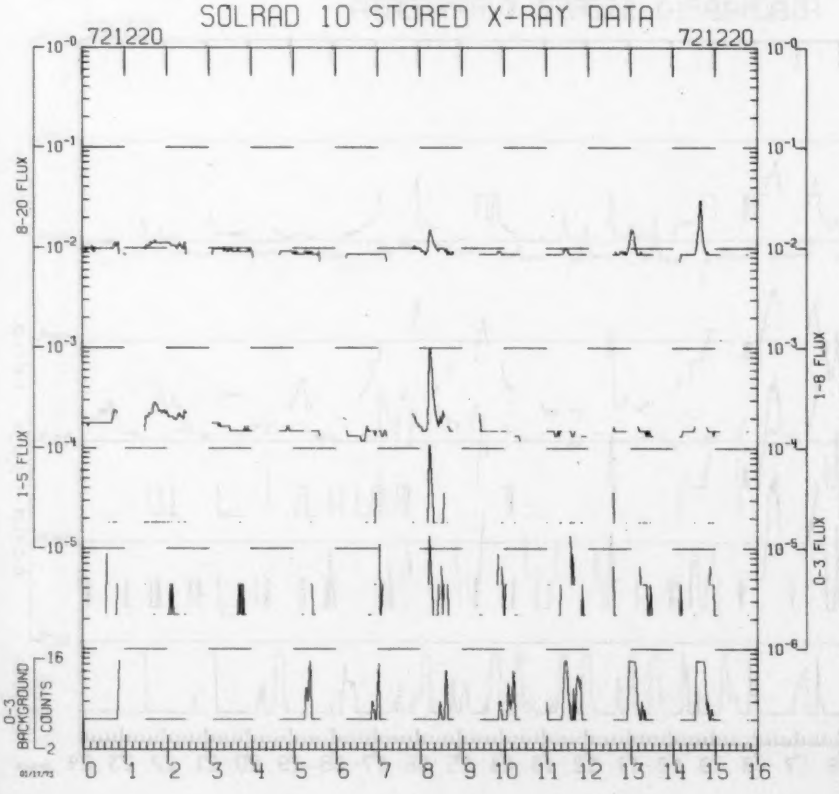
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1-5 FLUX
1-8 FLUX
0-3 FLUX
0-3 BACKGROUND COUNTS
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SOLRAD 10 STORED X-RAY DATA
721221
721221
8-20 FLUX
1-5 FLUX
1-8 FLUX
0-3 FLUX
0-3 BACKGROUND COUNTS
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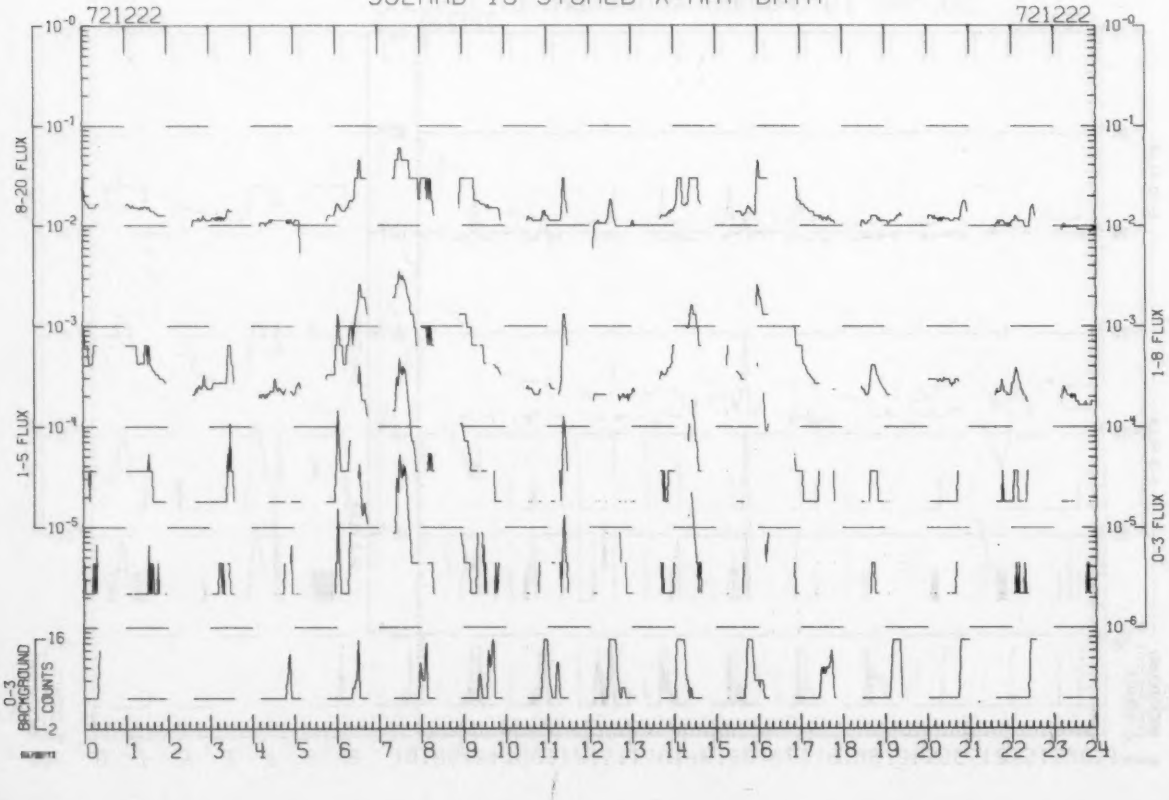
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1-5 FLUX
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0-3 BACKGROUND COUNTS
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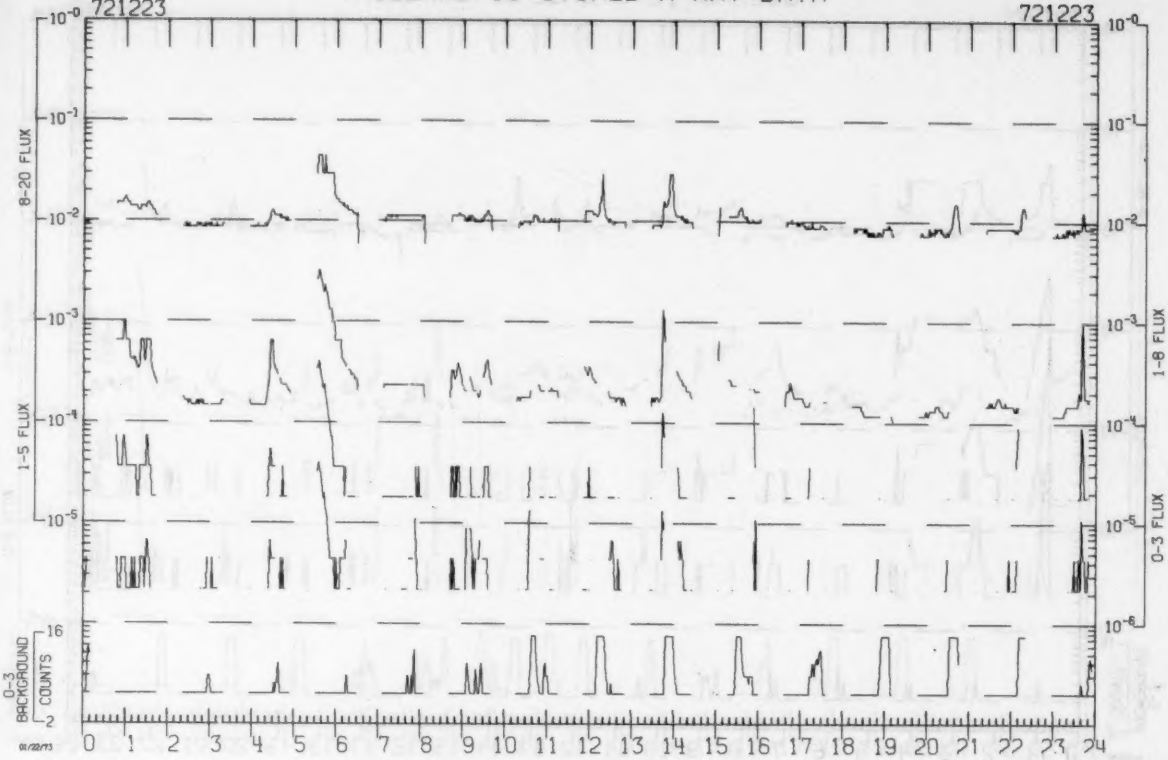
SOLRAD 10 STORED X-RAY DATA



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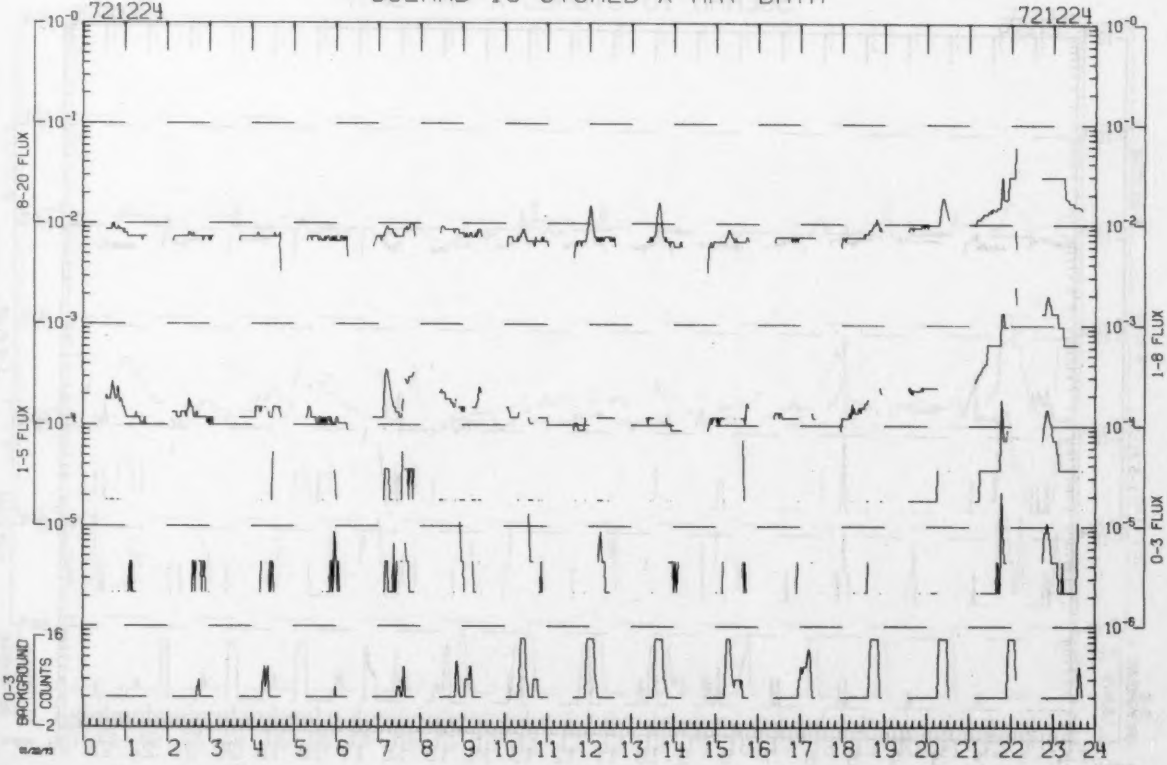

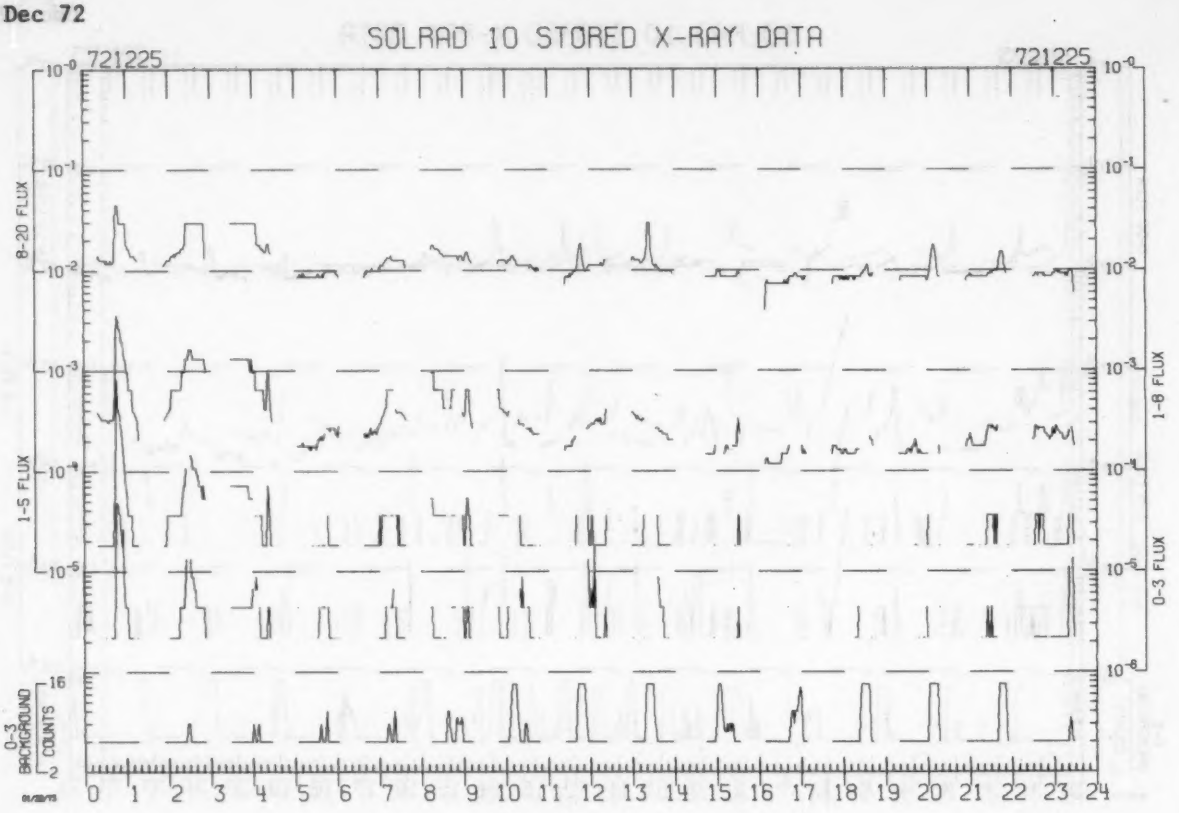
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721225
721225
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1-5 FLUX
1-8 FLUX
0-3 FLUX
0-3 BACKGROUND COUNTS
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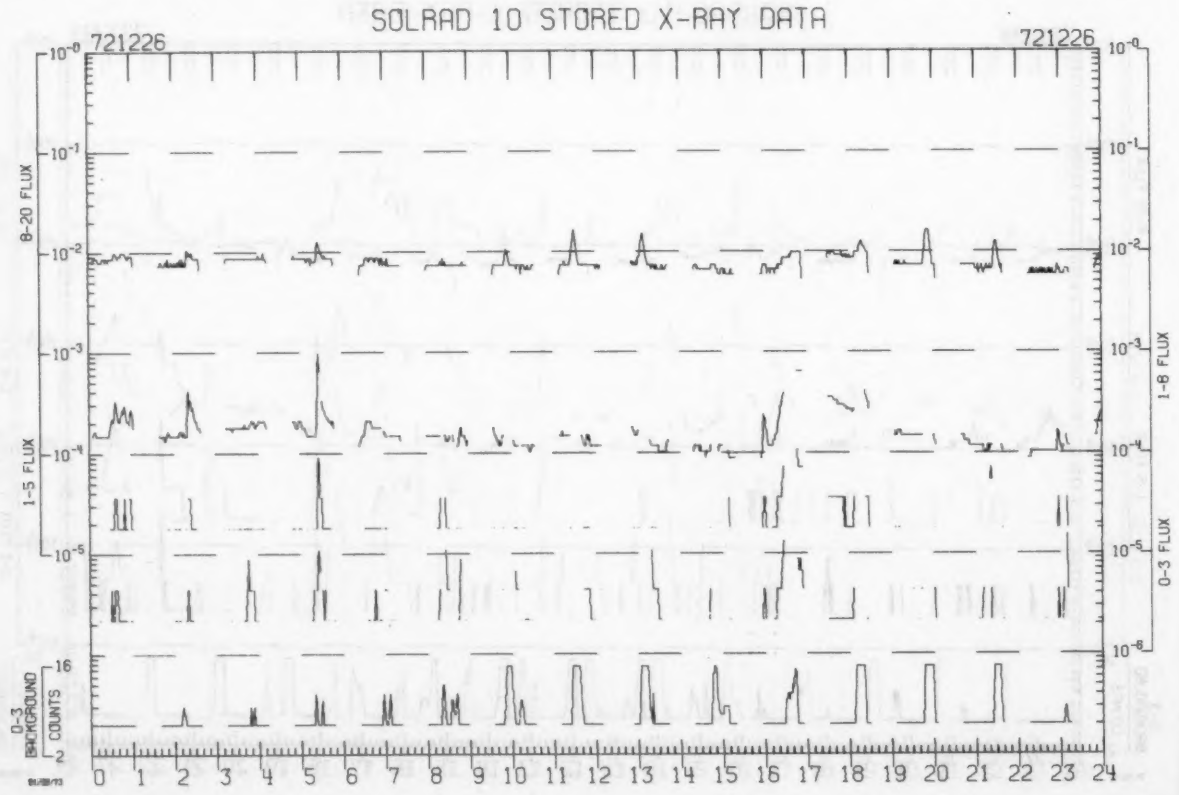
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721226
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8-20 FLUX
1-5 FLUX
1-8 FLUX
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0-3 BACKGROUND COUNTS
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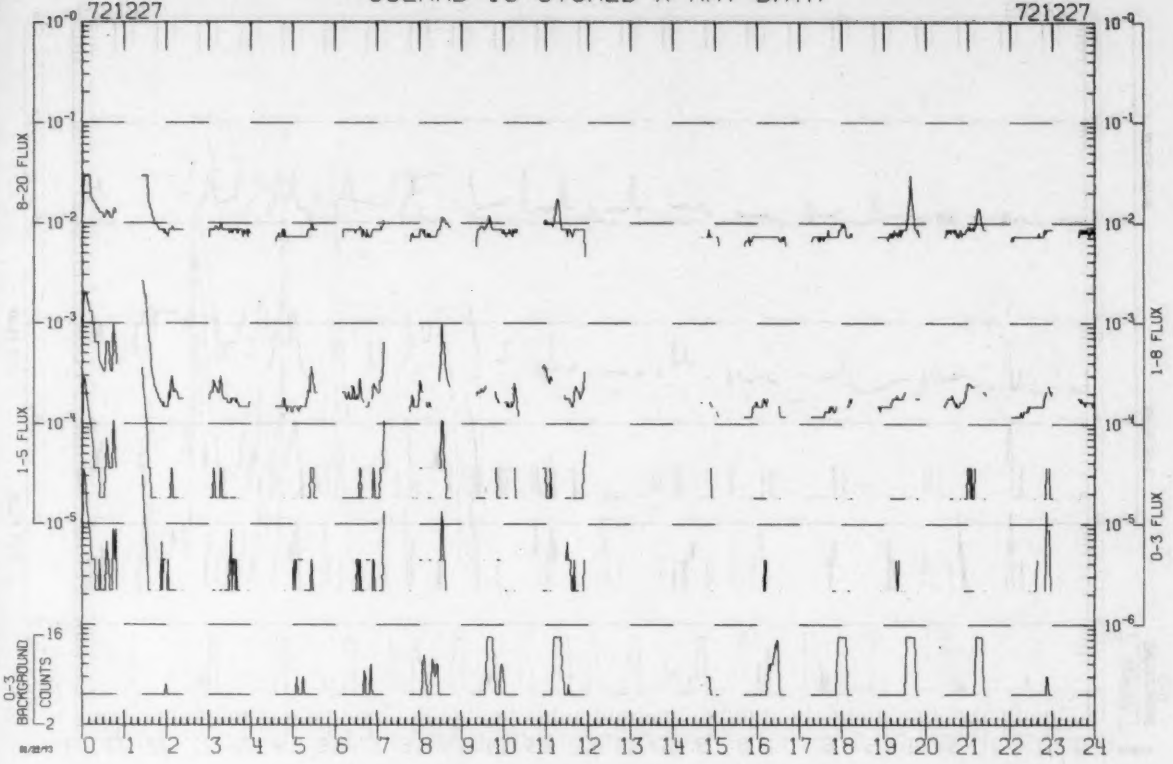

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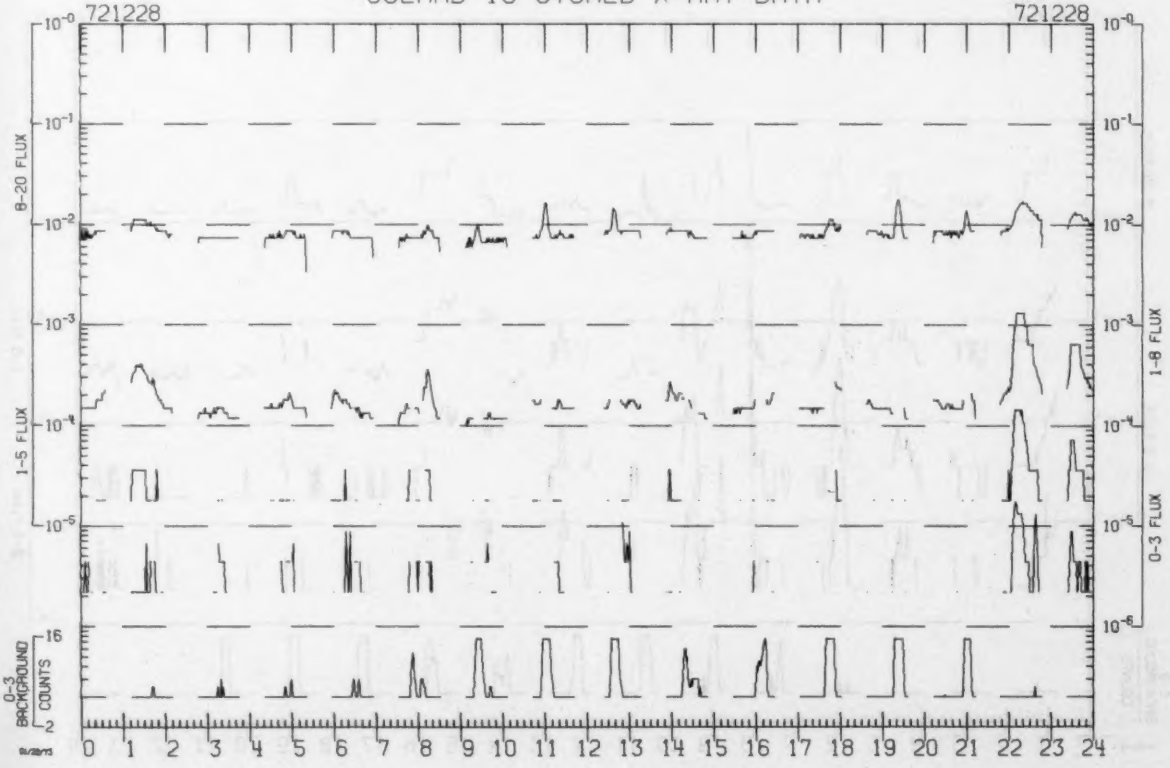

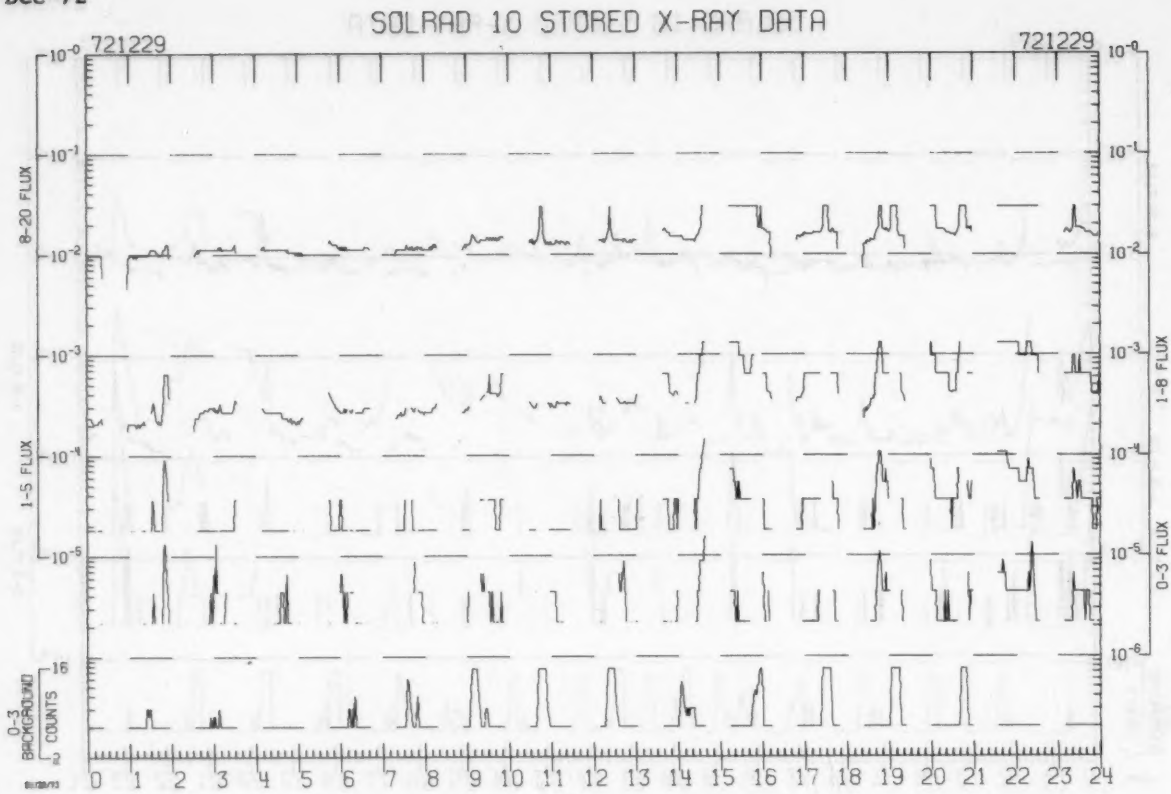
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8-20 FLUX
1-5 FLUX
1-8 FLUX
0-3 FLUX
0-3 BACKGROUND COUNTS
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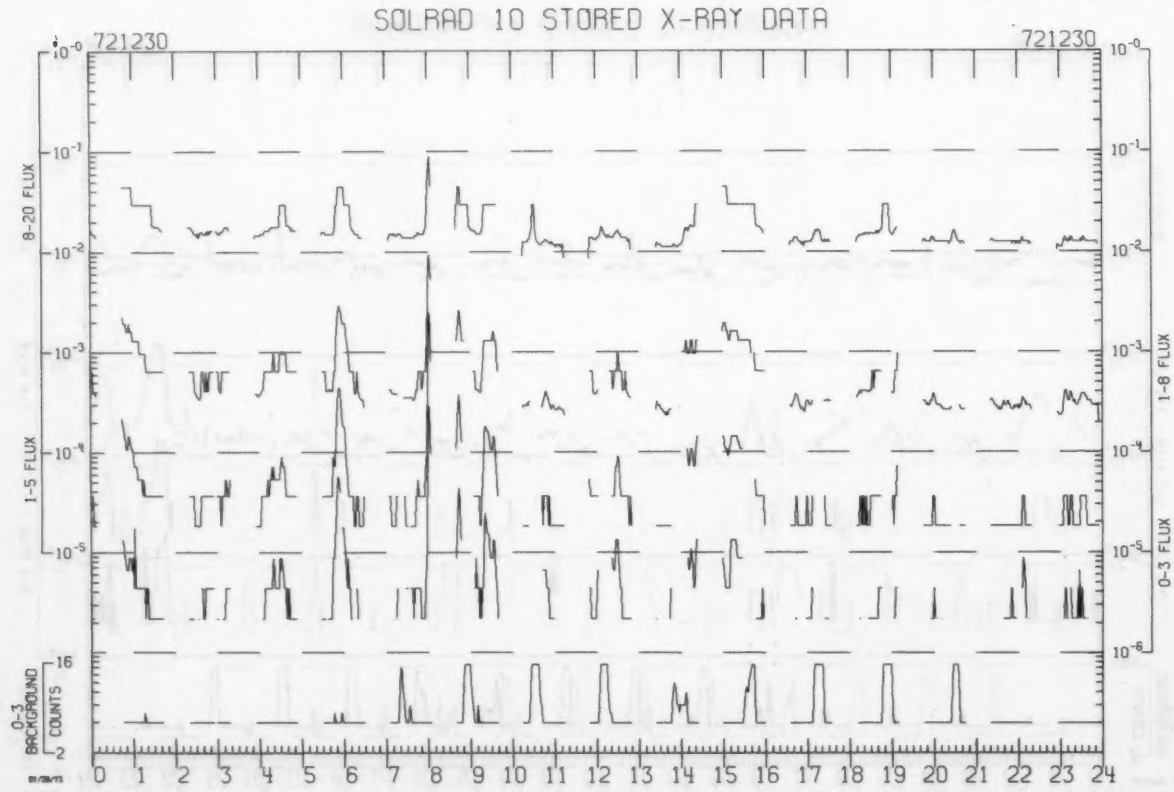
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8-20 FLUX
1-5 FLUX
1-8 FLUX
0-3 FLUX
0-3 BACKGROUND COUNTS
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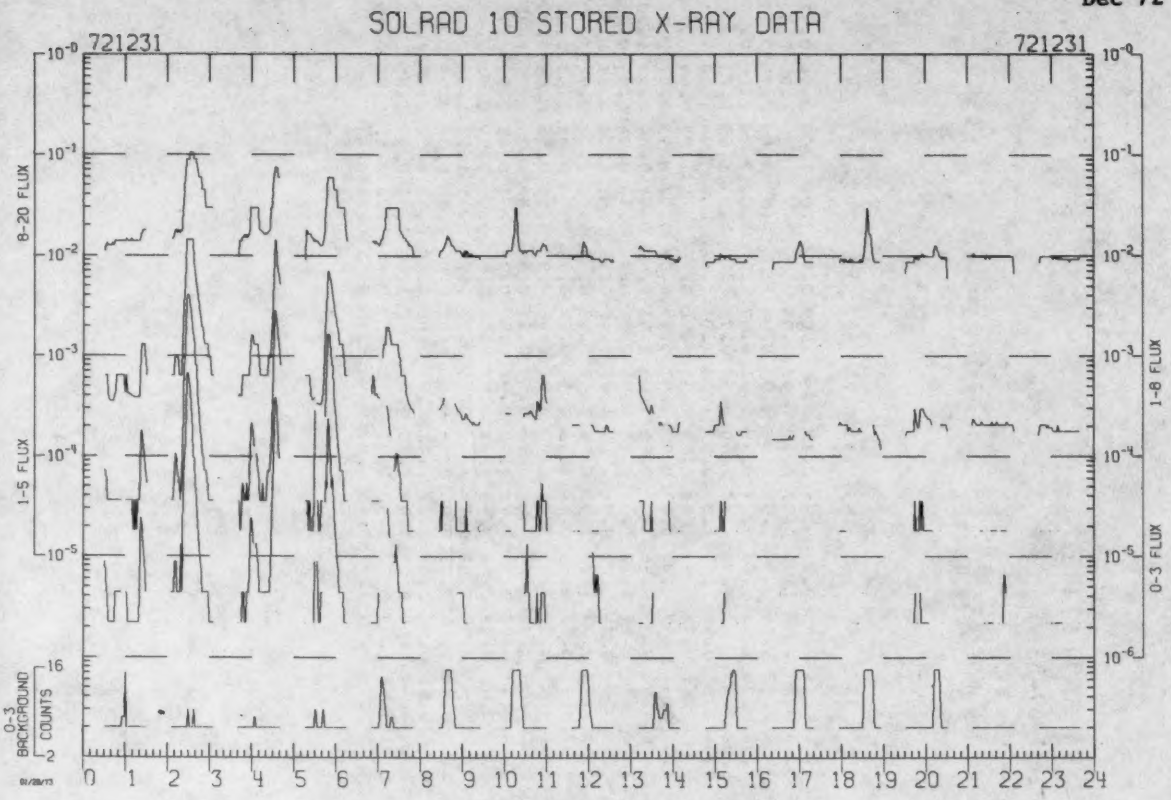
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721231
8-20 FLUX
1-5 FLUX
0-3 BACKGROUND COUNTS
1-8 FLUX
0-3 FLUX
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

SOLAR PROTONS BY SATELLITE
EXPLORER 41 (1969–53A)
DECEMBER 1972

PROTON ENERGY GREATER THAN 60 MEV. HOURLY AVERAGES. IMPG SOLAR PROTON MONITOR. JHU/APL AND GSFC

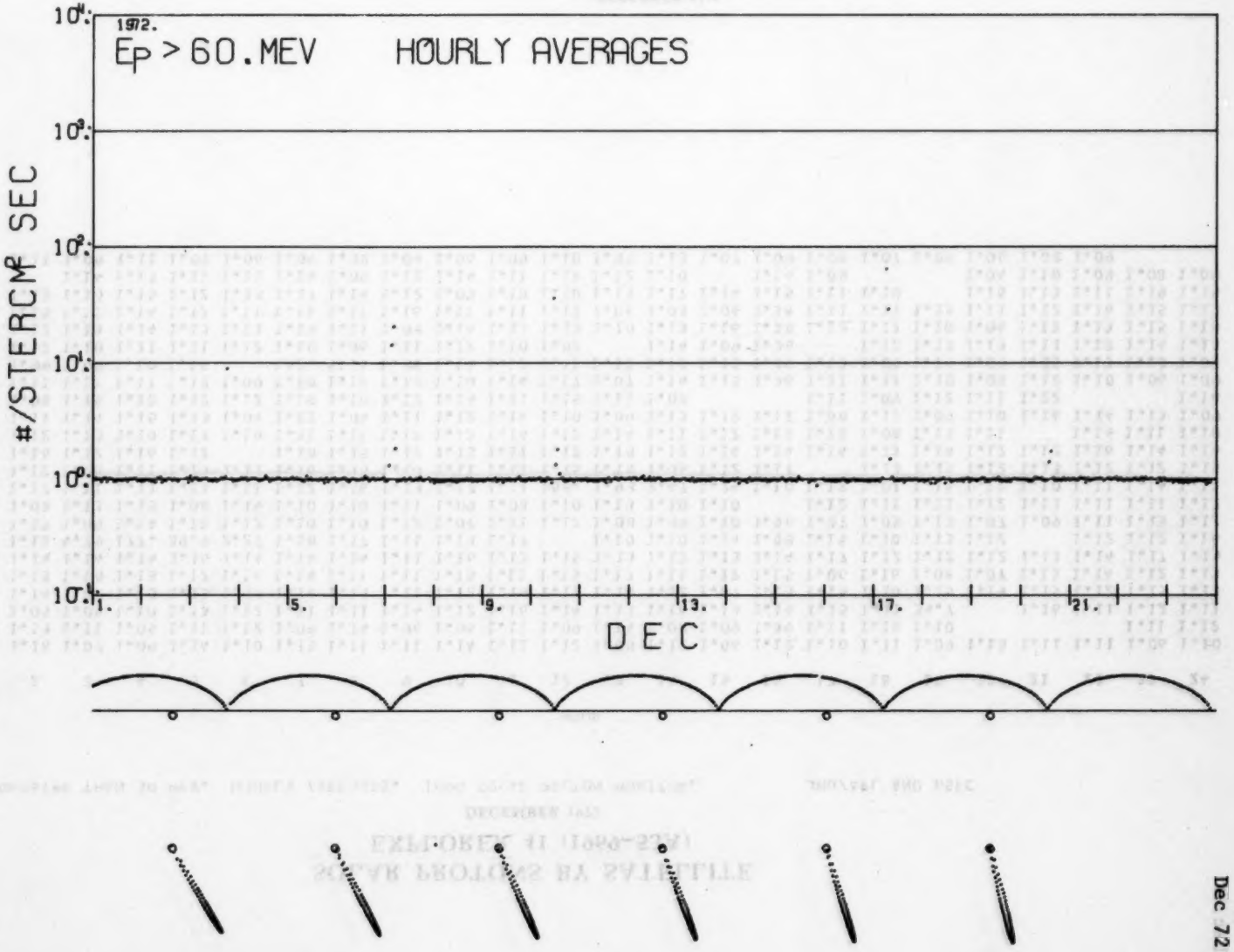
YEAR 1972

DATE	DAY OF YEAR	HOUR 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
12 1	336	0.99	1.02	0.99	1.00	0.95	1.01	1.01	0.95	1.01	1.00	0.95	0.94	0.98	0.98	0.97	0.98	0.99	0.96	1.00	0.99	1.00	1.00	0.96	0.97
12 2	337	0.96	0.95	0.98	0.98	0.97	0.94	0.95	0.94	1.01	1.03	0.94	0.98	0.96	1.00	1.00	0.97	0.99	0.98	0.95				1.01	0.93
12 3	338	1.05	0.96	1.01	1.01	0.98	0.97	0.99	1.00	1.00	0.96	0.98	0.96	0.99	0.94	0.97	1.01	0.99	1.03	8.90		0.99	0.95	0.98	0.98
12 4	339	0.99	1.02	0.99	1.01	0.97	0.99	1.00	1.00	1.00	0.98	0.96	0.98	0.99	1.06	1.02	0.95	0.99	0.98	0.99	1.01	1.00	0.98	1.00	0.99
12 5	340	0.99	1.00	1.03	0.99	1.01	0.99	0.99	0.96	0.94	1.06	0.98	1.02	0.98		0.98	0.97	1.00	0.98	0.92	1.01	0.95	1.00	1.00	1.01
12 6	341	0.94	0.99	0.99	1.01	1.01	0.98	0.95	0.99	1.00	0.99	0.98	0.98	1.00	0.99	1.05	1.01	0.97	1.00	1.01	0.98	1.00	0.99	1.00	1.03
12 7	342	0.96	0.96	1.30	14.2	20.6	1.83	0.95	0.99	0.97	1.01	0.97		1.01	0.98	0.97	1.00	0.98	1.03	0.98	0.97		1.02	0.95	0.98
12 8	343	0.93	0.97	0.94	0.95	0.96	0.94	0.97	0.97	0.98	0.95	0.94	0.94	0.97	0.97	0.97	0.97	0.99	0.97	0.99	0.95	0.97	0.95	0.97	0.97
12 9	344	0.95	0.96	0.99	0.93	0.98	0.97	1.01	0.94	0.98	0.99	0.94	0.98	0.97	0.99	0.96		0.96	1.00	1.03	0.97	0.96	0.94	0.98	1.00
12 10	345	0.98	1.00	0.97	0.99	1.01	0.95	0.98	0.95	1.02	0.99	0.92	36.0	1.32	1.77	1.10	1.01	0.96	0.96	0.96	0.99	0.98	0.94	0.99	0.98
12 11	346	0.98	0.96	0.98	0.99	0.95	0.97	0.97	0.95	0.95	0.95	0.98	0.98	0.97	0.94	1.02	0.95		1.01	0.99	0.98	1.01	1.00	0.99	1.00
12 12	347	1.01	0.99	1.02	1.01	0.98		1.03	1.05	0.98	0.98	1.03	0.97	1.00	0.97	1.01	1.01	0.98	0.97	0.97	0.99	0.98	1.02	0.97	0.98
12 13	348	0.98	0.97	1.00	1.00	0.98	0.98	0.96	1.01	0.95	0.95	0.99	0.97	0.98	0.98	0.96	0.98	0.96	1.00	0.99	0.98		0.98	0.99	0.96
12 14	349	0.97	0.95	0.98	0.99	0.98	1.00	0.92	0.97	0.97	0.96	0.93	1.01	0.97	0.98	0.99	0.98	0.99	0.97	0.98	0.99	0.95	0.95	0.98	0.99
12 15	350	0.98	0.97	0.98	1.01	0.99	0.95	0.98	1.00	0.96	0.98	0.96	1.04	0.99	0.98			0.94	0.98	0.97	0.96	0.88			1.00
12 16	351	0.96	0.96	0.96	0.95	0.97	0.94	0.96	0.96	0.98	1.00	0.97	0.93	0.97	0.97	0.99	0.96	0.96	0.97	0.97	0.96	0.97	0.95	0.95	0.97
12 17	352	0.97	0.97	0.98	0.94	1.02		64.4	29.1	1.48	1.03	0.97	0.99	0.96	0.98	0.98	0.93	0.97	0.99	0.98	0.97	0.99	0.99	0.97	0.97
12 18	353	0.97	0.94	0.97	0.98	0.92	1.00	0.91	0.96	0.98	0.99	1.01	0.93		0.99	0.94	0.96		0.96	0.97	0.99	0.95	1.00	1.02	0.95
12 19	354	1.00	0.98	0.99	0.96	0.99	1.02	1.01	0.95	0.94	0.95	1.00	0.99	0.98	1.03	0.97	0.95	0.98	0.94	0.98	0.94	1.00	1.00	0.99	0.99
12 20	355	0.99	0.99	0.99	0.98	0.96	0.96	0.98	1.03	1.02	1.00	1.02	0.98	0.96	0.97	1.39	1.72	1.02	0.97	0.98	0.98	0.97	1.02	0.98	1.00
12 21	356	0.98	0.99	1.00	0.98	0.98	1.02	1.02	1.01	0.93	1.01	0.97	0.99	0.99	1.00	1.00	1.02	1.00	0.98		1.01	1.01	0.99	1.01	1.02
12 22	357	0.98	1.02	0.98	0.96	1.00	0.98	0.97	0.99	1.01	0.99	0.98	1.03	0.98	1.03		1.00	1.01			0.93	1.02	0.96	1.02	0.98
12 23	358	0.97	0.97	0.98	0.94	0.97	0.96	0.94	0.94	0.92	0.96	0.92	0.96	0.95	0.95	0.99	0.96	0.97	0.96	0.96	0.90	0.94	0.93		

SOLAR PROTONS BY SATELLITE

SOLAR PROTONS BY SATELLITE
EXPLORER 41 (1969-53A)

DECEMBER 1972



SOLAR PROTONS BY SATELLITE
EXPLORER 41 (1969–53A)

DECEMBER 1972

PROTON ENERGY GREATER THAN 30 MEV. HOURLY AVERAGES. IMPC SOLAR PROTON MONITOR. JHU/APL AND GSFC

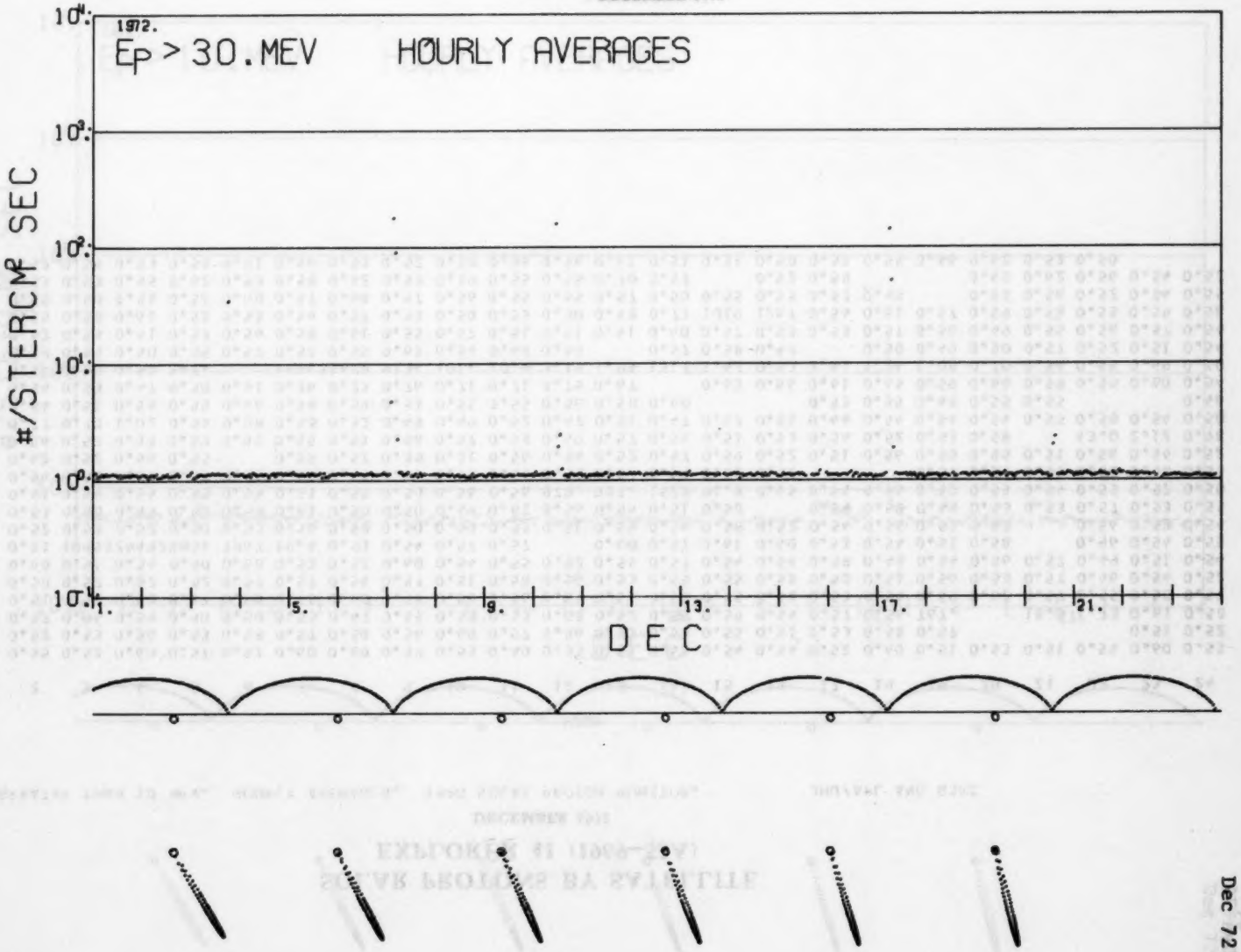
YEAR 1972

DATE	DAY OF YEAR	HOUR 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
12 1	336	1.12	1.16	1.07	1.09	1.14	1.10	1.15	1.11	1.11	1.14	1.12	1.12	1.09	1.12	1.06	1.12	1.10	1.11	1.09	1.13	1.11	1.11	1.06	1.10
12 2	337	1.13	1.13	1.11	1.05	1.11	1.12	1.09	1.14	1.06	1.06	1.11	1.09	1.14	1.08	1.09	1.09	1.11	1.16	1.10				1.11	1.12
12 3	338	1.19	1.05	1.08	1.10	1.13	1.12	1.11	1.11	1.14	1.12	1.16	1.14	1.13	1.16	1.13	1.14	1.15	1.11	34.7		1.16	1.11	1.12	1.11
12 4	339	1.14	1.14	1.09	1.10	1.13	1.08	1.16	1.14	1.11	1.12	1.14	1.11	1.14	1.12	1.07	1.13	1.15	1.10	1.15	1.14	1.15	1.12	1.15	1.13
12 5	340	1.15	1.13	1.18	1.13	1.12	1.11	1.14	1.11	1.11	1.15	1.11	1.15	1.13	1.11	1.12	1.15	1.06	1.16	1.08	1.07	1.11	1.14	1.12	1.13
12 6	341	1.15	1.14	1.14	1.14	1.16	1.14	1.14	1.14	1.11	1.16	1.13	1.15	1.13	1.12	1.13	1.14	1.17	1.12	1.12	1.12	1.13	1.14	1.17	1.14
12 7	342	1.12	1.13	4.79	177.	89.9	2.27	1.18	1.17	1.11	1.13	1.17		1.10	1.10	1.14	1.08	1.15	1.10	1.13	1.12		1.12	1.12	1.14
12 8	343	1.13	1.13	1.09	1.14	1.12	1.12	1.10	1.10	1.12	1.07	1.11	1.12	1.08	1.09	1.10	1.06	1.07	1.05	1.13	1.07	1.09	1.11	1.13	1.12
12 9	344	1.10	1.08	1.13	1.13	1.08	1.14	1.10	1.10	1.11	1.09	1.08	1.10	1.13	1.10	1.10		1.12	1.11	1.11	1.12	1.11	1.14	1.11	1.12
12 10	345	1.09	1.17	1.11	1.11	1.13	1.11	1.12	1.16	1.13	1.17	1.11	158.	1.93	2.47	1.24	1.10	1.12	1.07	1.15	1.12	1.10	1.11	1.14	1.13
12 11	346	1.09	1.12	1.06	1.11	1.10	1.11	1.10	1.15	1.10	1.11	1.11	1.15	1.14	1.06	1.12	1.11		1.13	1.15	1.12	1.13	1.12	1.12	1.15
12 12	347	1.12	1.16	1.12	1.16	1.12		1.10	1.15	1.12	1.13	1.11	1.12	1.18	1.12	1.14	1.14	1.14	1.13	1.14	1.12	1.12	1.16	1.14	1.14
12 13	348	1.11	1.12	1.13	1.10	1.17	1.10	1.11	1.17	1.12	1.12	1.14	1.12	1.14	1.11	1.12	1.12	1.12	1.08	1.13	1.11		1.14	1.11	1.10
12 14	349	1.12	1.11	1.14	1.15	1.13	1.04	1.12	1.09	1.11	1.12	1.14	1.10	1.09	1.13	1.12	1.12	1.08	1.13	1.09	1.10	1.16	1.14	1.13	1.09
12 15	350	1.08	1.08	1.15	1.12	1.12	1.12	1.10	1.10	1.12	1.14	1.11	1.15	1.11	1.08			1.11	1.09	1.12	1.11	1.22			1.16
12 16	351	1.10	1.11	1.11	1.11	1.12	1.09	1.10	1.12	1.12	1.10	1.14	1.17	1.07	1.14	1.13	1.06	1.11	1.11	1.10	1.08	1.12	1.10	1.06	1.09
12 17	352	1.08	1.09	1.09	1.10	1.15		142.	51.6	1.88	1.13	1.12	1.11	1.12	1.12	1.13	1.09	1.13	1.09	1.14	1.09	1.05	1.13	1.10	1.05
12 18	353	1.08	1.12	1.10	1.11	1.11	1.12	1.10	1.06	1.11	1.12	1.10	1.08		1.14	1.09	1.08		1.12	1.13	1.13	1.11	1.10	1.14	1.13
12 19	354	1.10	1.12	1.13	1.14	1.13	1.13	1.15	1.11	1.08	1.14	1.13	1.13	1.10	1.13	1.16	1.08	1.12	1.12	1.10	1.06	1.13	1.13	1.15	1.14
12 20	355	1.09	1.15	1.12	1.14	1.12	1.11	1.16	1.17	1.16	1.11	1.11	1.12	1.06	1.08	2.04	2.38	1.11	1.11	1.15	1.11	1.11	1.12	1.16	1.13
12 21	356	1.08	1.13	1.10	1.15	1.12	1.13	1.17	1.14	1.12	1.09	1.10	1.10	1.13	1.17	1.14	1.15	1.11	1.10		1.15	1.13	1.11	1.19	1.15
12 22	357	1.16		1.14	1.13	1.11	1.11	1.14	1.09	1.12	1.14	1.11	1.12	1.12	1.10		1.14	1.08			1.04	1.10	1.09	1.08	1.09
12 23	358	1.09	1.11	1.09	1.11	1.09	1.06	1.09	1.08	1.08	1.06	1.09	1.10	1.09	1.13	1.07	1.09	1.09	1.07	1.09	1.06	1.08	1.09		

SOLAR PROTONS BY SATELLITE

SOLAR PROTONS BY SATELLITE
EXPLORER 41 (1969-53A)

DECEMBER 1972



SOLAR PROTONS BY SATELLITE
EXPLORER 41 (1969–53A)

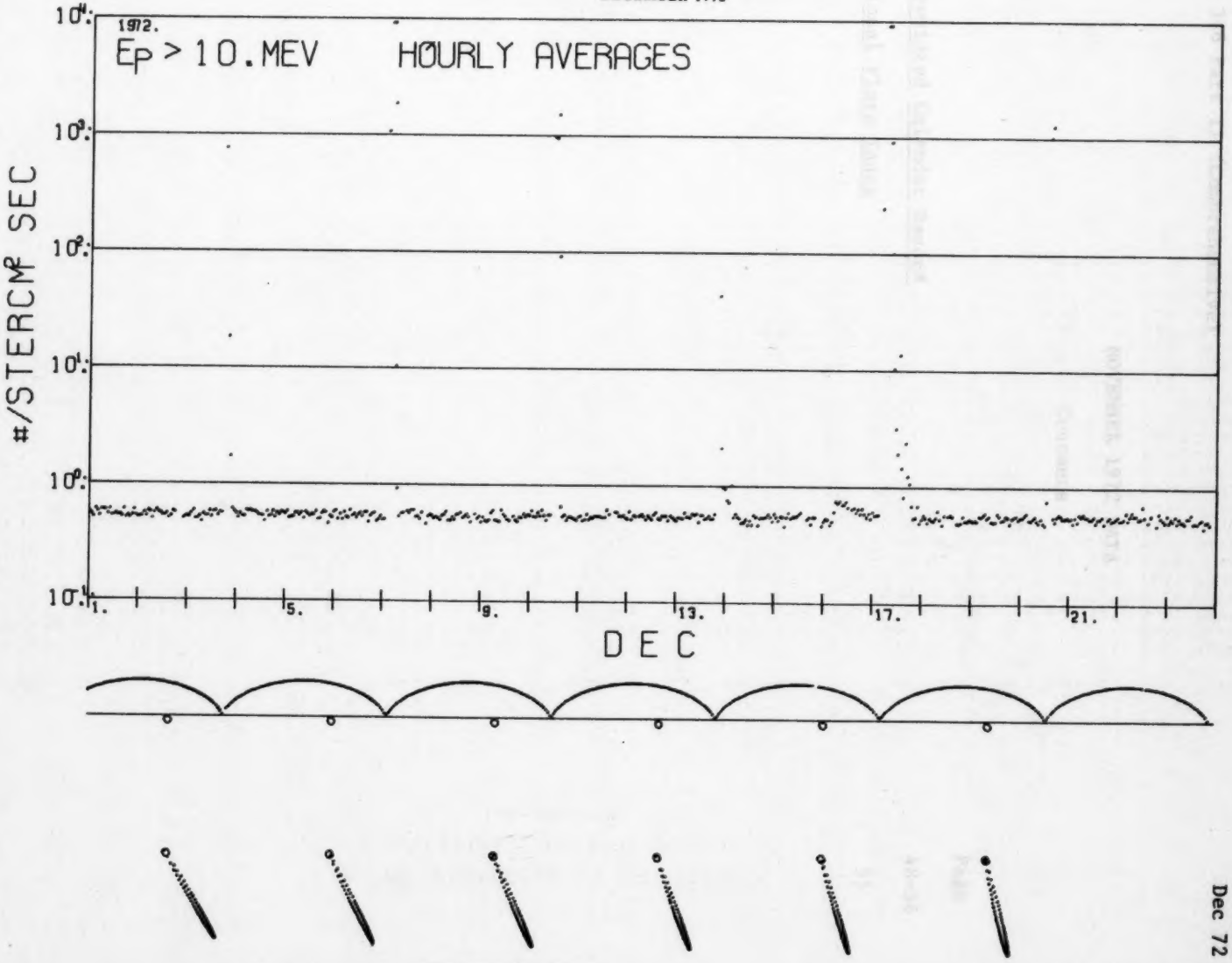
DECEMBER 1972

PROTON ENERGY GREATER THAN 10 MEV. HOURLY AVERAGES. IMPG SOLAR PROTON MONITOR. JHU/APL AND GSFC

YEAR 1972

DATE	DAY OF YEAR	HOUR 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
12 1	336	0.57	0.55	0.52	0.60	0.57	0.52	0.60	0.60	0.59	0.55	0.60	0.53	0.53	0.55	0.54	0.54	0.52	0.60	0.51	0.53	0.51	0.54	0.60	0.53
12 2	337	0.52	0.52	0.53	0.56	0.53	0.58	0.57	0.50	0.56	0.60	0.57	0.56	0.53	0.53	0.55	0.51	0.53	0.58	0.57				0.51	0.52
12 3	338	0.53	0.52	0.56	0.59	0.50	0.50	0.53	0.47	0.55	0.53	0.53	0.58	0.52	0.58	0.59	0.54	0.57	0.56	767.		18.3	1.73	0.61	0.58
12 4	339	0.56	0.51	0.56	0.53	0.53	0.60	0.58	0.60	0.58	0.58	0.56	0.54	0.54	0.53	0.48	0.58	0.53	0.54	0.59	0.52	0.57	0.55	0.58	0.57
12 5	340	0.55	0.58	0.52	0.52	0.52	0.57	0.57	0.54	0.57	0.51	0.58	0.56	0.53	0.55	0.55	0.58	0.50	0.51	0.56	0.58	0.57	0.46	0.54	0.52
12 6	341	0.58	0.60	0.51	0.56	0.50	0.58	0.53	0.52	0.60	0.54	0.55	0.52	0.55	0.57	0.54	0.58	0.58	0.48	0.54	0.56	0.57	0.49	0.51	0.54
12 7	342	0.50	0.51	1085	1244	928	631	1867	10.4	0.93	0.54	0.57	0.57		0.60	0.57	0.61	0.60	0.53	0.54	0.51	0.58		0.46	0.54	0.55
12 8	343	0.55	0.52	0.53	0.52	0.50	0.55	0.56	0.59	0.50	0.50	0.53	0.51	0.55	0.56	0.58	0.52	0.54	0.56	0.53	0.48		0.56	0.52	0.54
12 9	344	0.48	0.53	0.50	0.49	0.50	0.58	0.61	0.50	0.50	0.49	0.61	0.56	0.54	0.51	0.50		0.54	0.50	0.48	0.53	0.53	0.57	0.53	0.55
12 10	345	0.55	0.61	0.54	0.54	0.59	0.55	0.61	0.55	0.50	0.56	0.56	979.	955.	1528	91.8	0.55	0.54	0.56	0.50	0.53	0.54	0.53	0.52	0.50
12 11	346	0.54	0.54	0.50	0.51	0.57	0.51	0.54	0.53	0.55	0.55	0.54	0.54	0.53	0.54	0.62	0.57			0.59	0.59	0.55	0.55	0.56	0.53
12 12	347	0.52	0.60	0.52	0.56	0.55		0.55	0.57	0.55	0.51	0.56	0.54	0.52	0.57	0.59	0.52	0.51	0.56	0.55	0.55	0.51	0.56	0.54	0.52
12 13	348	0.50	0.54	0.53	0.53	0.59	0.55	0.55	0.53	0.58	0.57	0.58	0.49	0.57	0.56	0.53	0.53	0.56	0.52	0.53	0.58		43.0	2.12	0.98
12 14	349	0.96	0.77	0.73	1.02	0.54	0.58	0.55	0.53	0.49	0.49	0.52	0.47	0.51	0.47	0.57	0.55	0.46	0.54	0.54	0.54	0.55	0.58	0.54	0.50
12 15	350	0.59	0.54	0.51	0.56	0.55	0.46	0.54	0.59	0.53	0.55	0.55	0.56	0.58	0.60			0.53	0.55	0.48	0.55	0.55			0.46
12 16	351	0.50	0.54	0.53	0.47	0.50	0.61	0.76	0.73	0.76	0.71	0.71	0.75	0.67		0.65	0.56	0.61	0.65	0.59	0.66	0.59	0.55	0.60	0.54
12 17	352	0.61	0.57	0.58	0.58	247.		*****	53688	913.	101.	10.4	3.19	1.94	13.7	1.47	0.83	2.41	1.24	1.08	0.70	0.54	0.55	0.69	0.50
12 18	353	0.54	0.58	0.55	0.50	0.55	0.52	0.52	0.55	0.63	0.54	0.48	0.58		0.57	0.58	0.57		0.50	0.49	0.50	0.57	0.52	0.51	0.54
12 19	354	0.52	0.52	0.53	0.51	0.57	0.56	0.58	0.61	0.55	0.57	0.51	0.51	0.51	0.60	0.57	0.53	0.53	0.57	0.56	0.49	0.55	0.56	0.57	0.54
12 20	355	0.56	0.55	0.58	0.61	0.53	0.53	0.54	0.57	0.53	0.50	0.55	0.50	0.48	0.77	1019	1267	0.56	0.51	0.57	0.59	0.58	0.55	0.55	0.56
12 21	356	0.55	0.55	0.50	0.56	0.52	0.60	0.57	0.60	0.57	0.56	0.55	0.55	0.57	0.50	0.55	0.55	0.57	0.49		0.55	0.56	0.52	0.54	0.55
12 22	357	0.58	0.53	0.53	0.55	0.62	0.53	0.58	0.62	0.58	0.59	0.55	0.55	0.70	0.57		0.52	0.58			0.48	0.62	0.56	0.54	0.52
12 23	358	0.59	0.52	0.55	0.53	0.58	0.51	0.56	0.53	0.52	0.50	0.56	0.56	0.61	0.51	0.51	0.50	0.53	0.55	0.46	0.52	0.52	0.50		

SOLAR PROTONS BY SATELLITE
EXPLORER 41 (1969-53A)
DECEMBER 1972



NOVEMBER 1972 DATA

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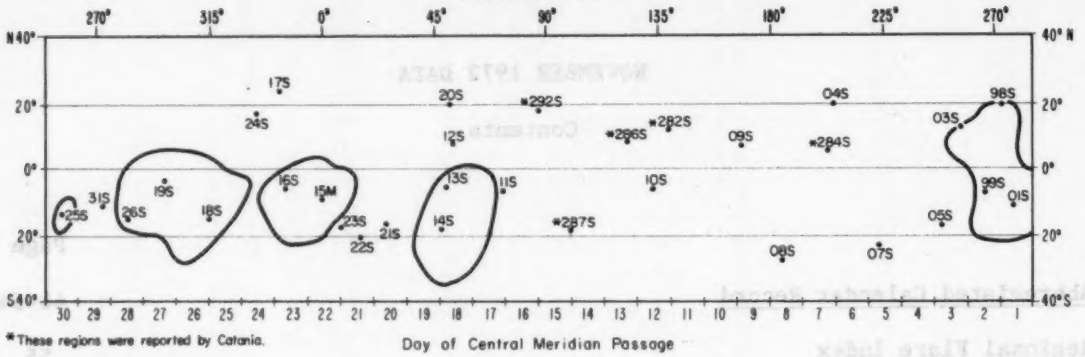
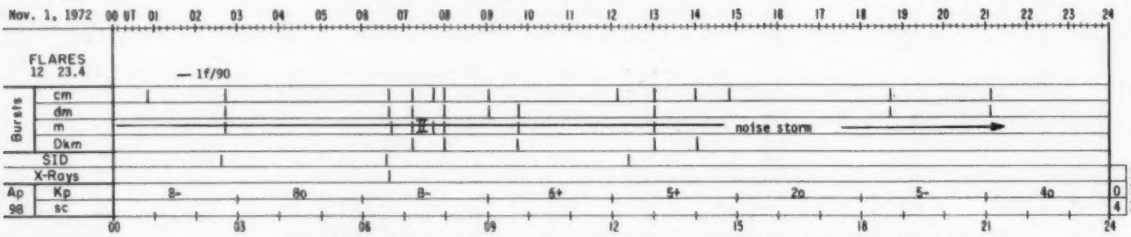
For explanations of the data contained herein see "Descriptive Text" published as supplement to February 1973 "Solar-Geophysical Data" (Number 342).

ABBREVIATED CALENDAR RECORD

NOVEMBER 1972

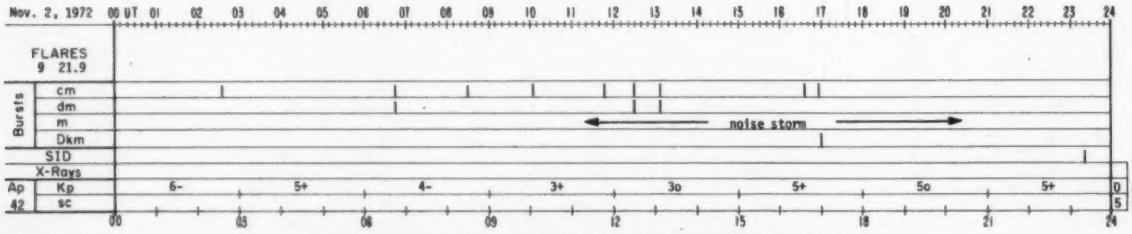


*These regions were reported by Catania.



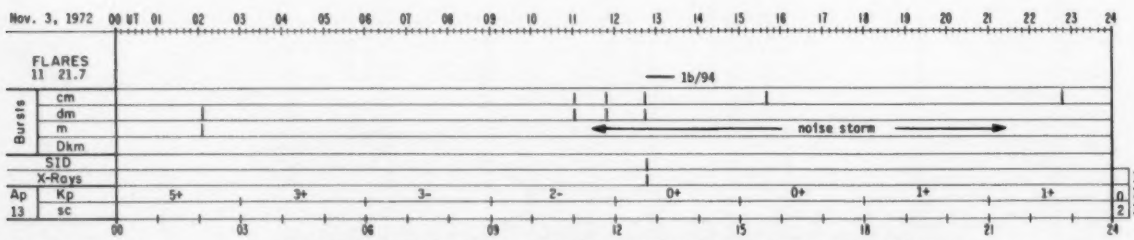
132 10 cm flux
75 Rz (Final)
CMP 12101 S11 19031 S10 (βf)2

One of five most magnetically disturbed days with severe storm conditions to 0900 and moderate storm continuing thereafter; auroral display concealed by cloud over W. Europe to 0200, then homogeneous arc, sometimes rayed, base overhead visible to ϕ = 61° 0200-0330; cosmic ray decrease which began October 31 reaches a maximum during middle of day; proton event on Explorer 41 which began October 29 returned to normal; no coronal data 7 days earlier on E. limb.



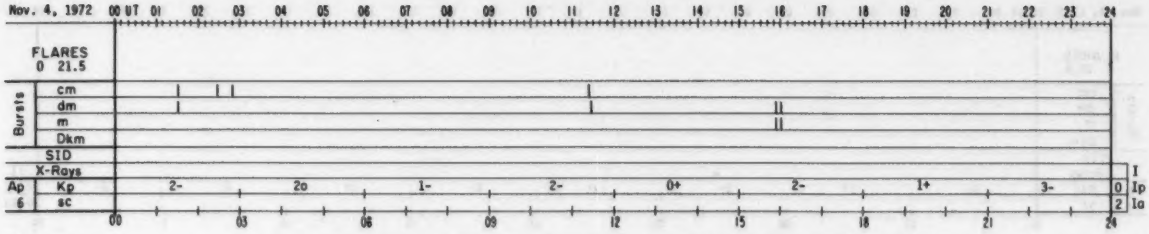
124 10 cm flux
67 Rz
CMP (12098) N20 (2)
12099 S07 (2) (19034) S09 (αp)2
(19036) S08 (αp)1

One of five most magnetically disturbed days with moderate activity all day; aurora overhead over USSR to ϕ = 53° 1100-1300; auroral displays over W. Europe observed thru cloud at ϕ = 61° may have been visible at lower latitudes had sky conditions permitted; no coronal data 7 days earlier on E. limb, nor 7 days later on W. limb.



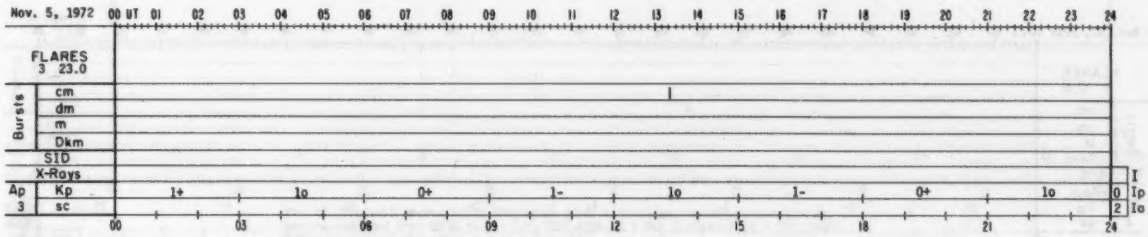
116 10 cm flux
4% Rz
CMP 12103 N13 (19033) N11 (βp 1
12105 S17 (2) (19038) S12 (βf)2

Aurora overhead over USSR to ϕ = 54° 1700-1800 and 2000-2100, ϕ = 55° 1900 and ϕ = 56° 1600-1700; auroral displays visible over W. Europe thru clouds to ϕ = 61° may have been visible in lower latitudes had sky conditions permitted; no coronal data 7 days earlier on E. limb, moderately br. green corona 7 days later on SW limb.



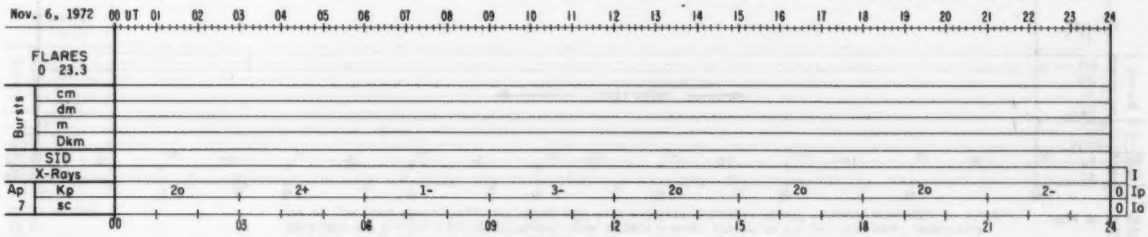
108 10 cm flux
30 Rz

One of ten most magnetically quiet days; moderately br. green corona 7 days earlier on SE limb.



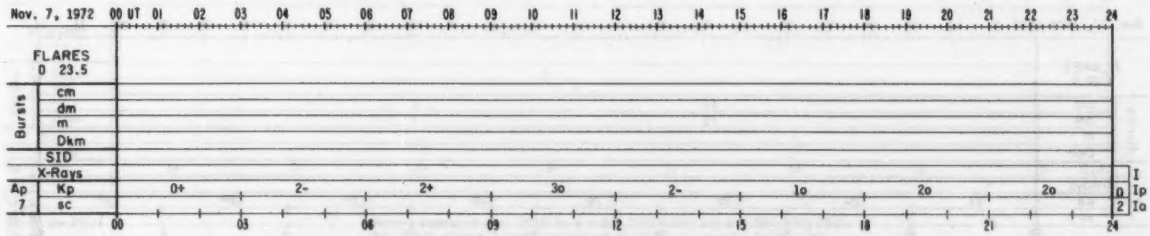
104 10 cm flux
23 Rz
CMP 12107 S23

One of five most magnetically quiet days.



95 10 cm flux
19 Rz

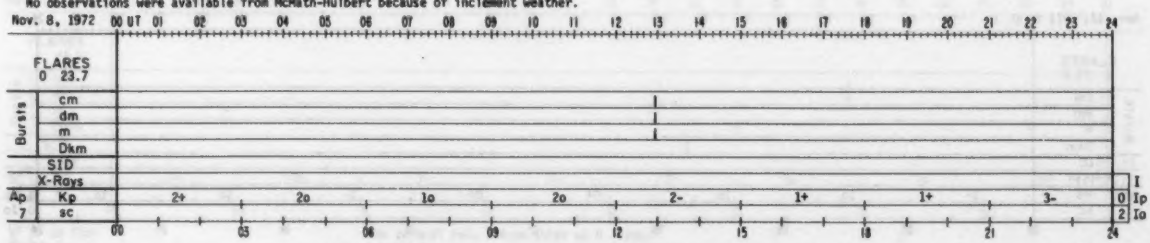
No coronal data 7 days later on W. limb.



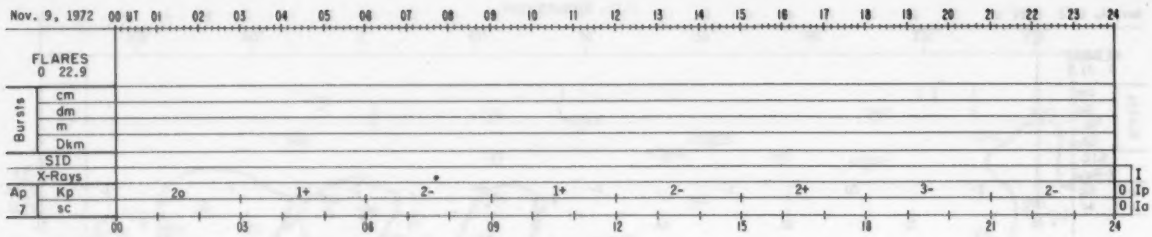
87 10 cm flux
8 Rz
CMP 12104 N20 (2)
*(284) N05 19039 N05 (βf 2

One of ten most magnetically quiet days; cosmic ray decrease which began October 31 returns to normal; no coronal data 7 days later on W. limb.

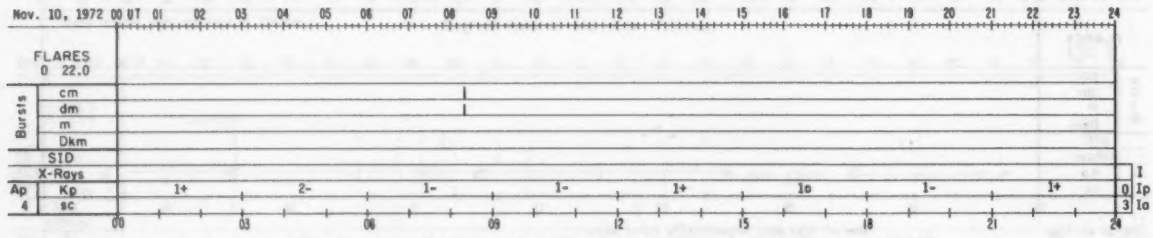
* These regions have been reported by Catania.
No observations were available from McMath-Hulbert because of inclement weather.



84 10 cm flux
7 Rz
CMP 12108 S28

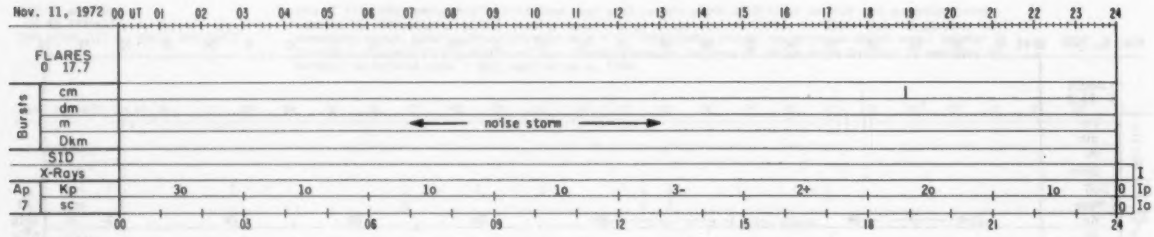
One of ten most magnetically quiet days; no coronal data 7 days later on W. limb.

84 10 cm flux
14 Rz
CMP 12109 N07 (3)

No coronal data 7 days earlier on E. limb.

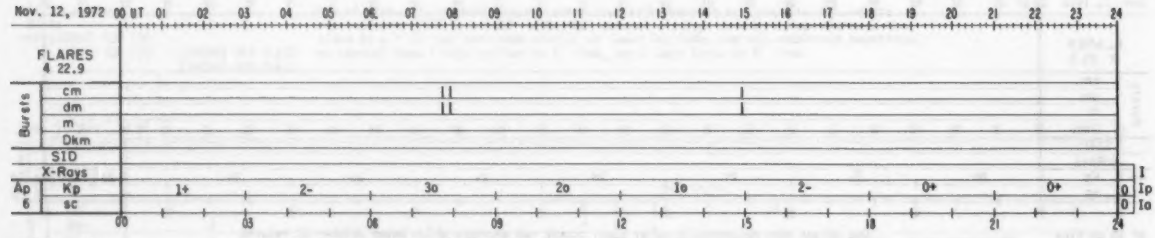


86 10 cm flux
12 Rz

One of five most magnetically quiet days; moderately br. green corona 7 days later on NW limb.

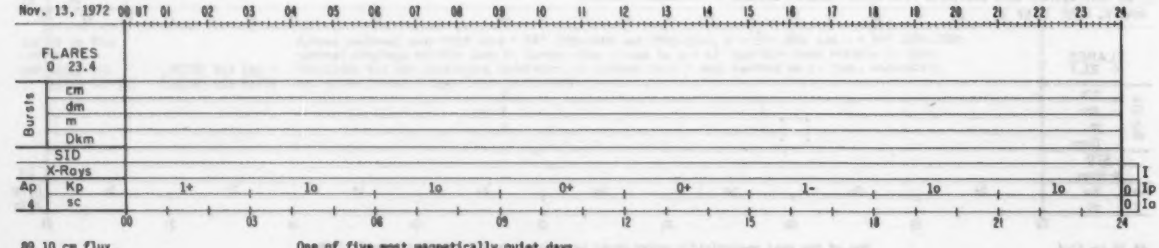


90 10 cm flux
30 Rz



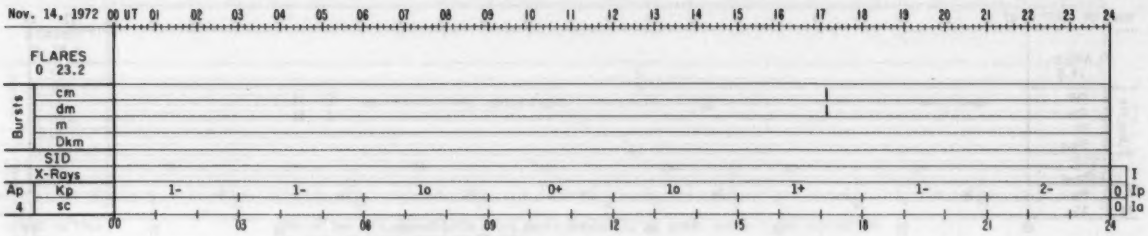
91 10 cm flux
33 Rz
CMP *(282) N12
12110 S06 (2)

One of ten most magnetically quiet days.



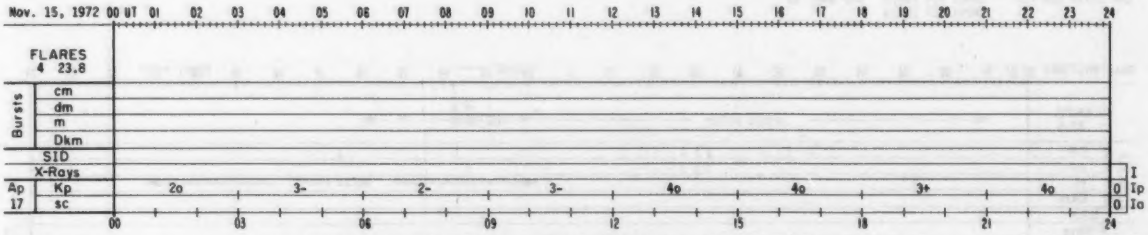
89 10 cm flux
30 Rz
CMP *286 N08

One of five most magnetically quiet days.



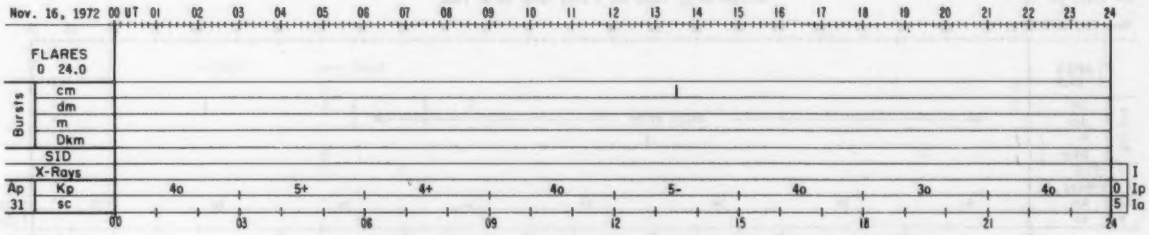
87 10 cm flux
27 Rz

One of five most magnetically quiet days.



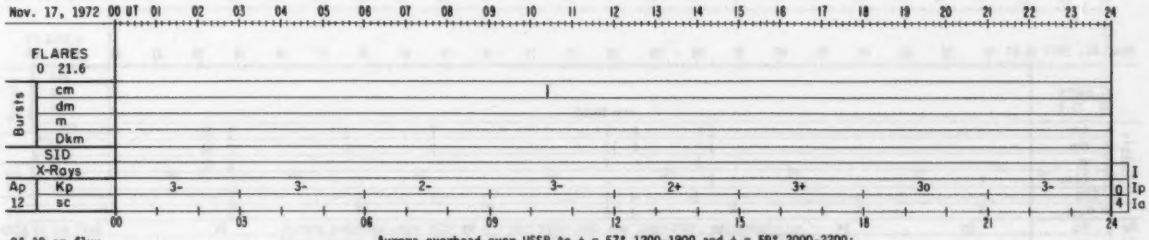
88 10 cm flux
21 Rz
CMP * 287 S18

One of five most magnetically disturbed days, with slight-to-moderate activity; aurora overhead over USSR to ϕ = 57° 1500-2100, ϕ = 58° 2100-2400, ϕ = 59° 1300-1500; no coronal data 7 days later on W. limb.



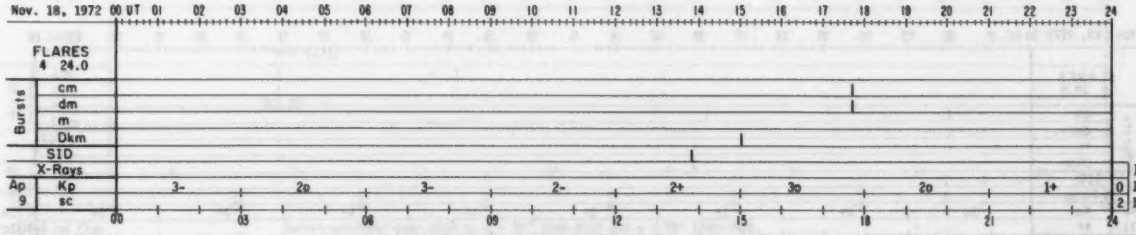
92 10 cm flux
25 Rz
CMP
*292 N18 N17 (no obs. Mt. Wilson)

One of five most magnetically disturbed days with moderate activity; aurora overhead over USSR to ϕ = 57° 1600-2000 and ϕ = 58° 1300-1600, auroral glow visible over W. Europe to ϕ = 59° 0450-0600; moderately br. green corona 7 days earlier on SE limb and 7 days later on SW limb.



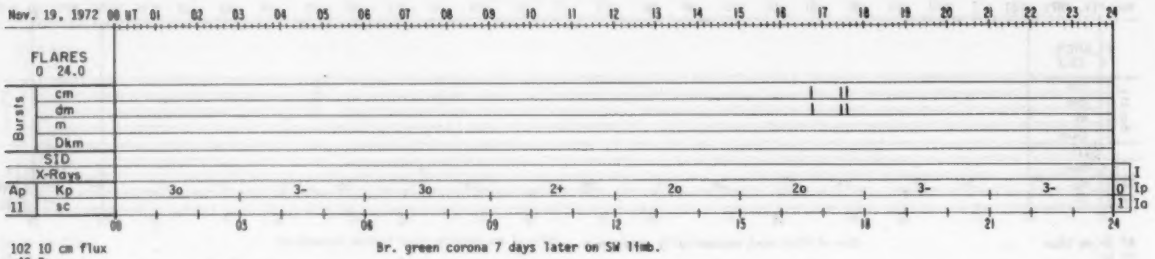
94 10 cm flux
32 Rz
CMP 12111 S06 (2) 19040 S04 (ap)3 CMP Nov. 16

Aurora overhead over USSR to ϕ = 57° 1200-1800 and ϕ = 59° 2000-2200; br. green corona 7 days earlier on SE limb, no coronal data 7 days later on W. limb.



97 10 cm flux
28 Rz
CMP 12112 N07 N09 (no obs. Mt. Wilson)
(12120) N20
12113 S05 (5)

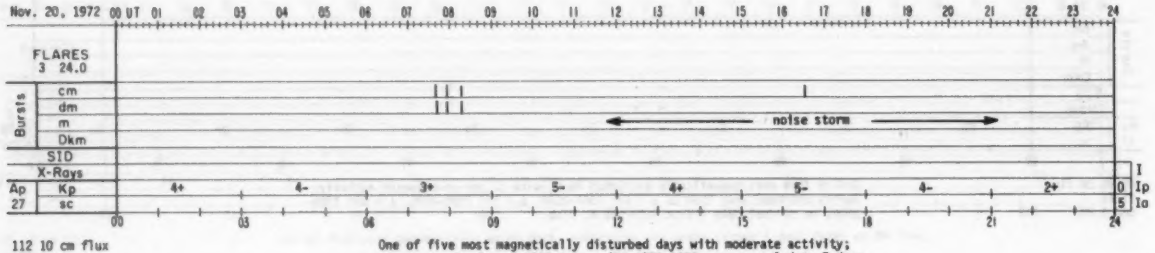
No coronal data 7 days later on W. limb.



102 10 cm flux
42 Rz
CMP 12114 S18 (2)

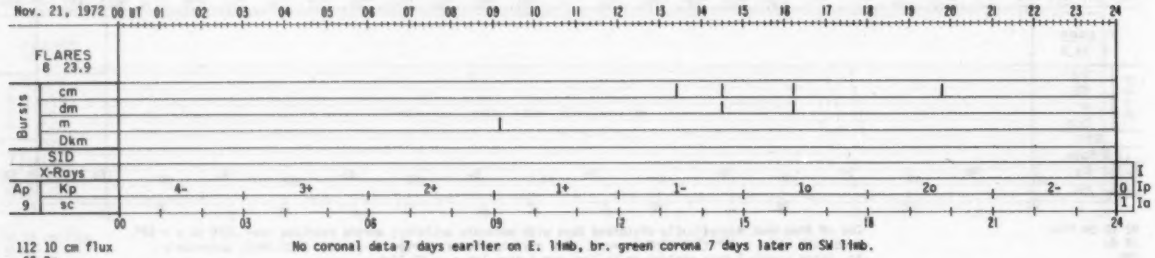
19041 S14 (αp)5 CMP Nov. 18
19043 S17 (βp)3

Br. green corona 7 days later on SW limb.



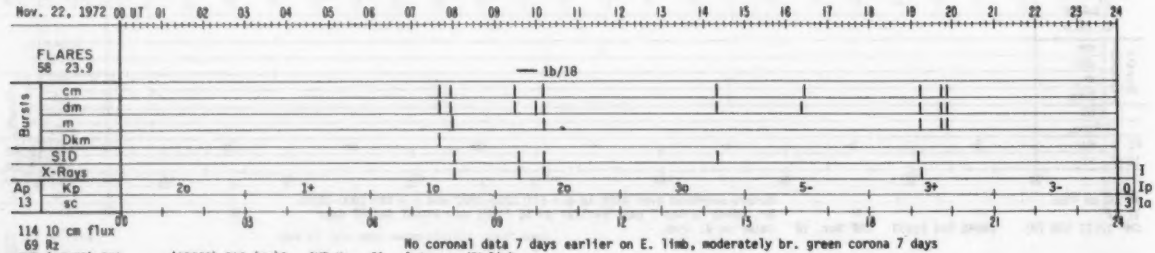
112 10 cm flux
58 Rz
CMP 12121 S17 (2)

One of five most magnetically disturbed days with moderate activity; aurora overhead over USSR to ϕ = 59° 1500-1600; no coronal data 7 days earlier on E. limb, nor 7 days later on W. limb.



112 10 cm flux
65 Rz
CMP (12122) S20

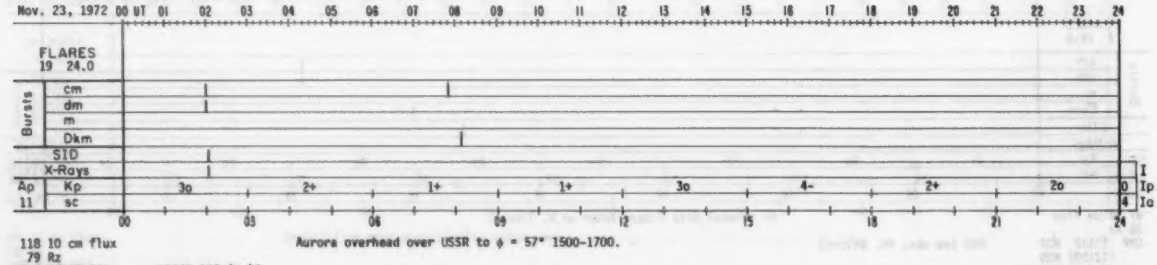
No coronal data 7 days earlier on E. limb, br. green corona 7 days later on SW limb.



114 10 cm flux
69 Rz
CMP (12123) S18
12115 S09 (3)

(19048) S16 (βp)2 CMP Nov. 21
19044 S08 (βp)4
(19047) S10 (αp)1 CMP Nov. 21

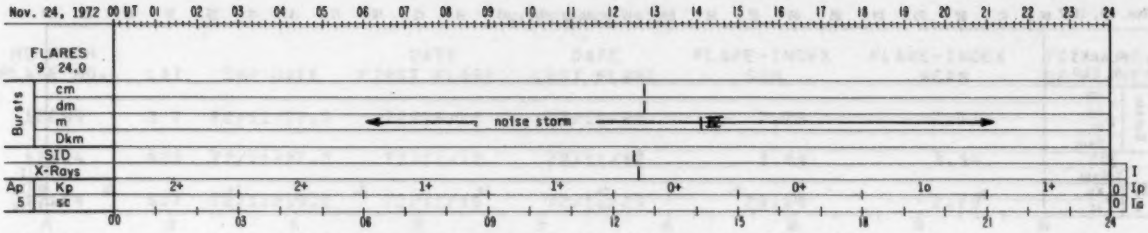
No coronal data 7 days earlier on E. limb, moderately br. green corona 7 days later on NW limb.



118 10 cm flux
79 Rz
CMP 12116 S06
12117 N23 (2)

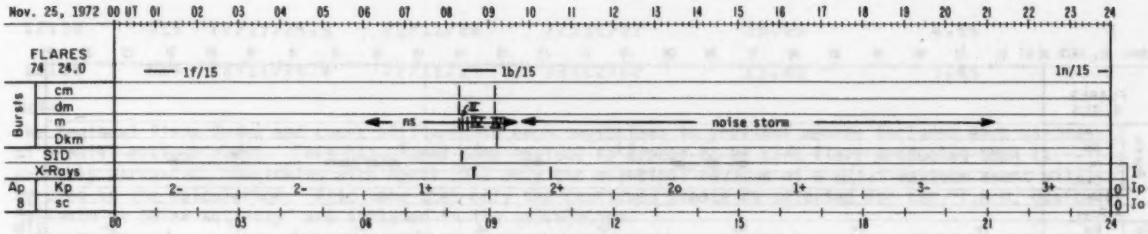
19042 S07 (βp)3

Aurora overhead over USSR to ϕ = 57° 1500-1700.



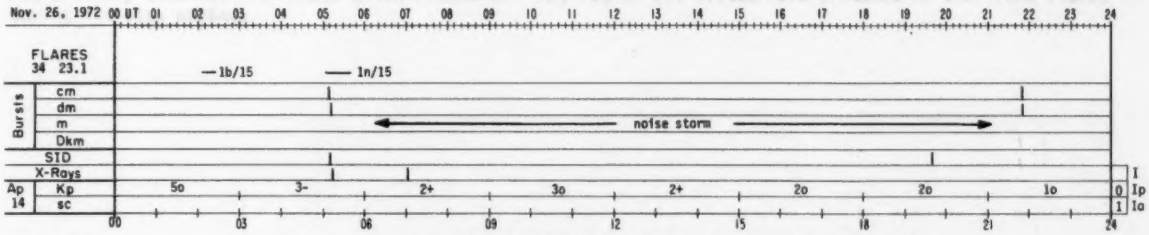
118 10 cm flux
77 Rz
CMP 12124 N16 (19052) N15 (β)3

One of ten most magnetically quiet days; moderately br. green corona 7 days earlier on SE limb and 7 days later on SW limb.



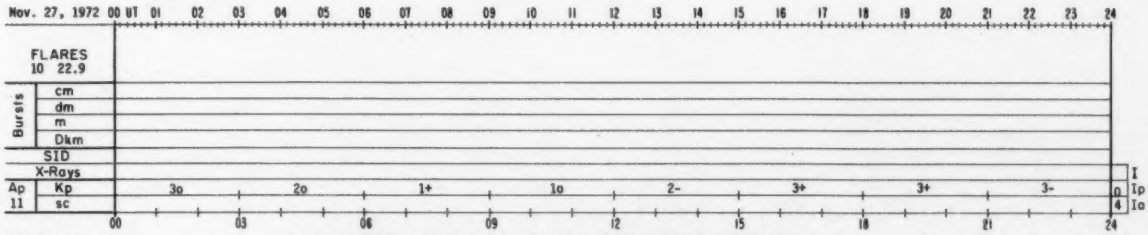
116 10 cm flux
65 Rz

Moderately br. green corona 7 days earlier on SE limb.



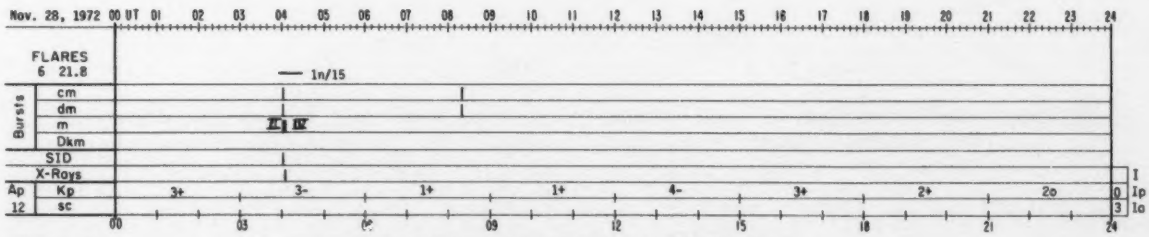
112 10 cm flux
57 Rz
CMP 12118 S14 (3) 19045 S09 (αp)5 CMP Nov. 25
19050 S15 βf)2

Very br. green corona 7 days earlier on NE and SE limb and 7 days later on SW limb, br. green corona 7 days later on NW limb.



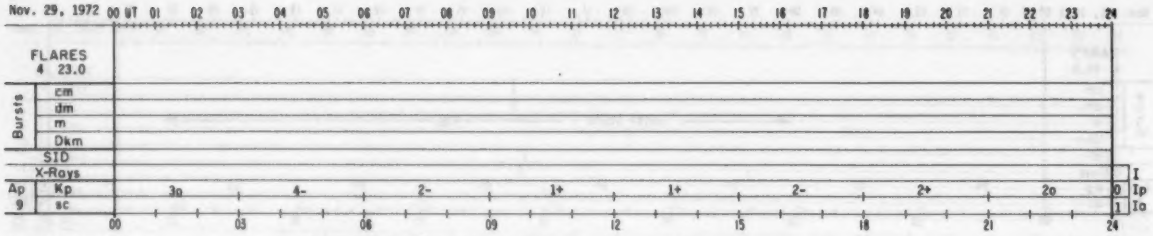
105 10 cm flux
55 Rz
CMP 12119 S03 (2) 19046 S03 (β)4
(19051) S04 (βp 2
19053 S01 (βp 2

Aurora overhead over USSR to ϕ = 59° 1400-1700 and 1800-2300; moderately br. green corona 7 days earlier on NE and SE limb and 7 days later on NW limb.



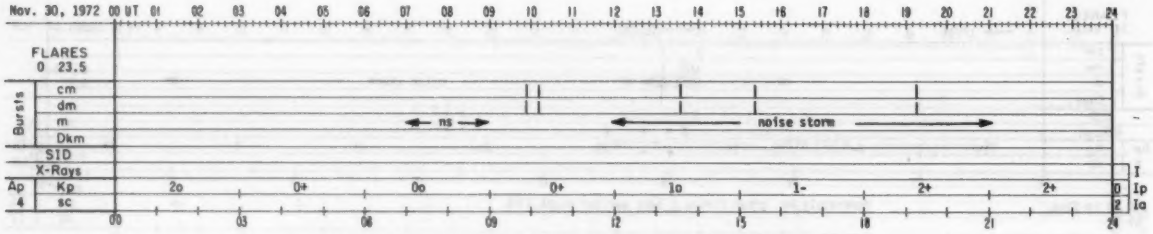
100 10 cm flux
61 Rz
CMP 12126 S15 19054 S16 (βp)3

Aurora overhead over USSR to ϕ = 56° 1900-2100 and ϕ = 59° 1400-1900.



95 10 cm flux
47 Rz
CMP (12131) S11

No coronal data 7 days earlier on E. limb nor 7 days later on W. limb.



98 10 cm flux
43 Rz
CMP 12125 S14 19049 S11 (βp)4

One of five most magnetically quiet days, extremely quiet 0300-1200 but with slight activity after 1800; moderately br. green corona 7 days earlier on SE limb and 7 days later on SW limb.

REGIONAL FLARE INDEX

NOVEMBER 1972

MC MATH PLAGE NO.	LAT	CMP DATE	DATE FIRST FLARE	DATE LAST FLARE	FLARE-INDEX SUM	FLARE-INDEX MEAN	TOTAL NO. OF FLARES
12099	S 7	72/11/02.5	72/10/28	72/10/28	7.73	7.73	1
12104	N20	72/11/07.0	72/11/12	72/11/12	3.99	3.99	1
12114	S17	72/11/19.0	72/11/15	72/11/23	25.08	2.79	5
12115	S 9	72/11/22.4	72/11/22	72/11/28	163.57	23.37	12
12116	S 6	72/11/23.7	72/11/18	72/11/18	3.72	3.72	1
12118	S15	72/11/25.3	72/11/20	72/11/27	36.45	4.56	3
12126	S15	72/11/28.4	72/11/29	72/12/02	13.81	3.45	2

Note:
The Regional Flare Index and count of flares in each region has in previous months included each maximum of a multi-maximum event. This has caused some regions to appear to be more flare producing than is probably warranted. Beginning with April 1972 only the principal maximum of a multi-maximum event will be used in the calculation. Also note that only the Confirmed Events as selected for the "I.A.U. Quarterly Bulletin on Solar Activity" are included in the calculation.

Because of differences in method of calculation, the dates of Central Meridian Passage for the McMath Plage Regions vary somewhat from those given elsewhere. Any region not listed here produced no confirmed flares during its disk passage.

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For explanations of the data contained herein see "Descriptive Text" published as supplement to February 1973 "Solar-Geophysical Data" (Number 342).

COSMIC RAY INDICES
(Neutron Monitors)

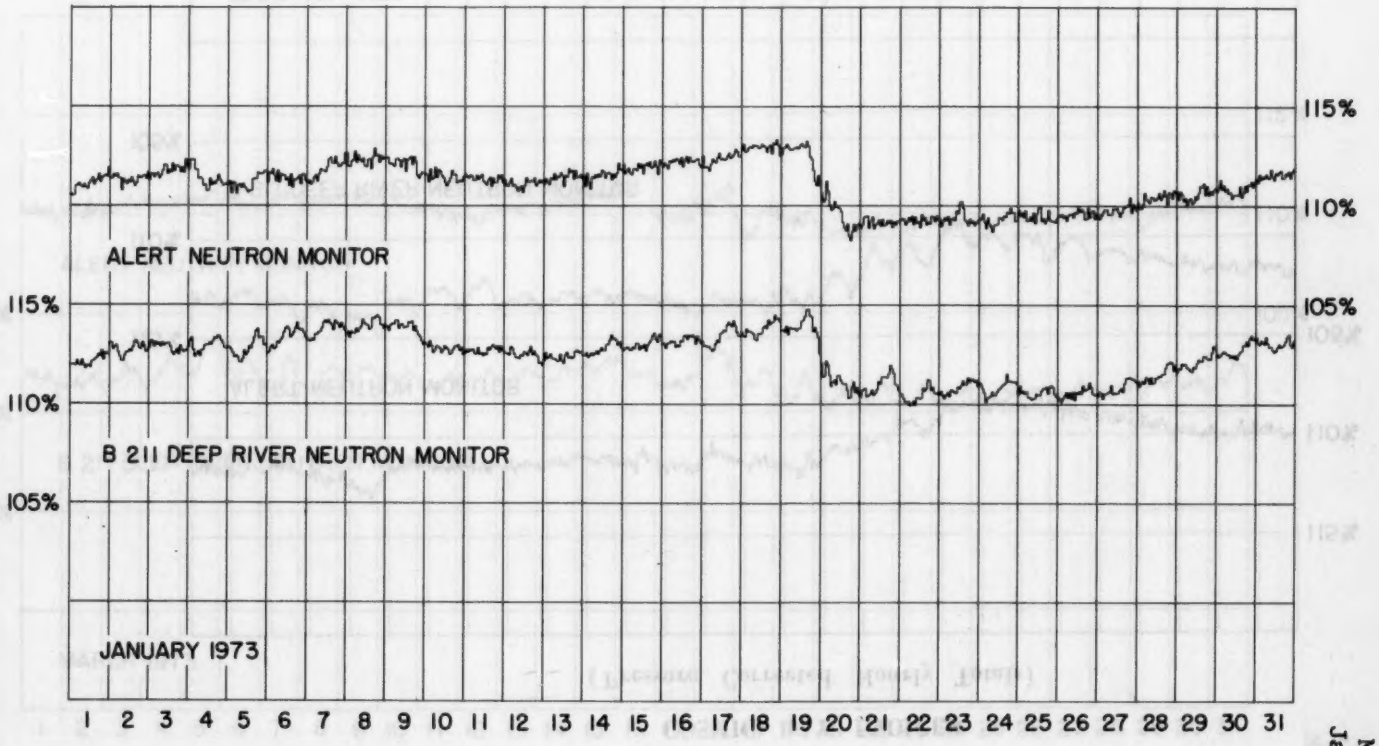
DEEP RIVER

	January 1973	February 1973	March 1973
	DAILY AVERAGE COUNTS PER HOUR	DAILY AVERAGE COUNTS PER HOUR	DAILY AVERAGE COUNTS PER HOUR
1	6953.1	7013.3	6922.8
2	6995.5	7006.4(23)	6906.6
3	7002.9	7044.0	6926.1
4	7009.9	7066.5	6941.3
5	7000.8	7092.1	6985.7
6	7039.9	7029.3	6965.3
7	7068.5	6998.7	6926.1
8	7078.8	6990.9	6920.4
9	7073.7	7021.4	6943.8
10	6999.6	7008.5	6930.3
11	6991.7	7003.3	6904.9
12	6976.2	7010.9	6923.6
13	6969.8	7046.6	6525.9
14	6999.5	7023.2	6934.5
15	7014.1	7026.5	6966.3
16	7026.6	7022.0	6950.2
17	7042.7	6958.3	6903.3
18	7071.5	6876.2	6985.3
19	7077.6	6857.3	6915.7
20	6879.4	6787.7	6874.3
21	6868.0	6812.4	6845.2
22	6830.6	6833.0	6857.0
23	6857.4	6838.4	6849.7
24	6856.7	6865.5	6846.5
25	6840.0	6882.7	6852.1
26	6837.1	6900.4	6868.8
27	6856.7	6911.3	6874.5
28	6903.5	6917.9	6865.9
29	6950.5		6891.9
30	6995.1		6901.8
31	7017.5		6923.3

Deep River Super Neutron Monitor, Scaling Factor 300.

COSMIC RAY INDICES

(Pressure Corrected Hourly Totals)



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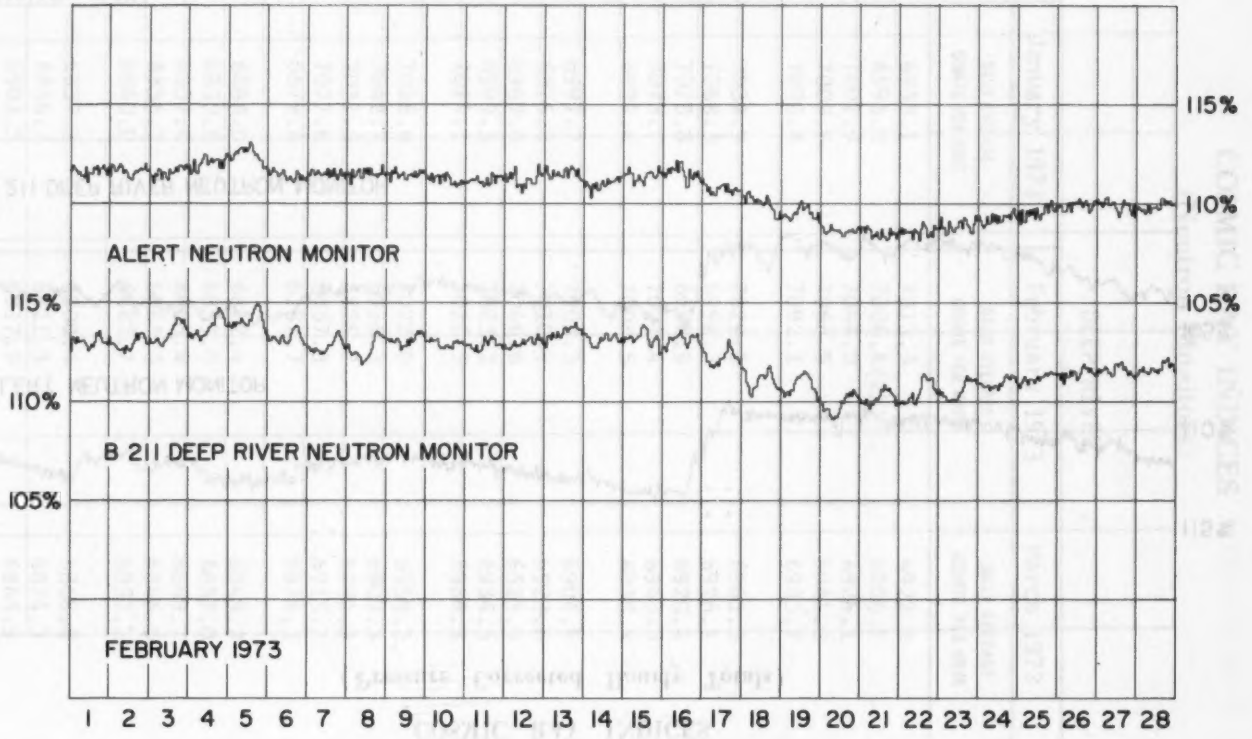
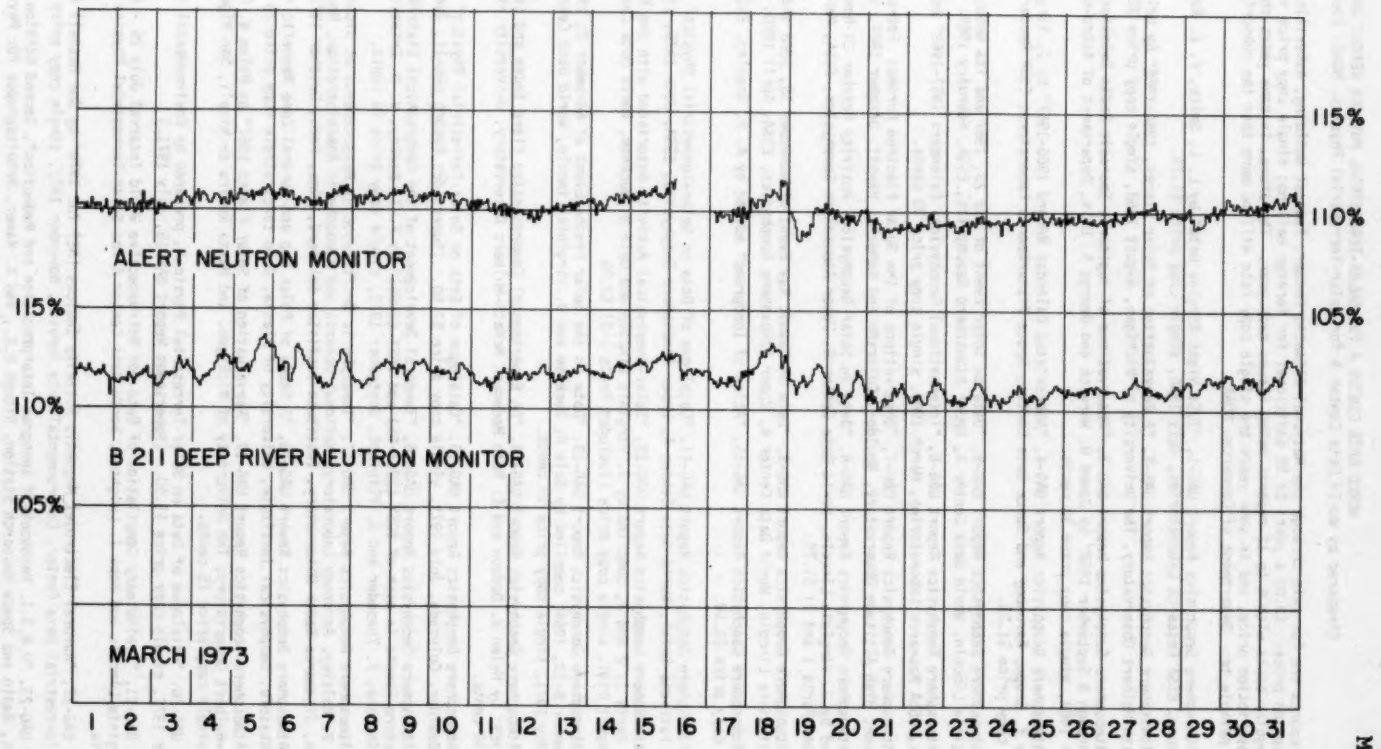
COSMIC RAY INDICES

(Pressure Corrected Hourly Totals)



COSMIC RAY INDICES

(Pressure Corrected Hourly Totals)



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(Prepared by World Data Center A for Solar-Terrestrial Physics, NOAA, Boulder, Colorado)

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